

**IN THE FAIR WORK COMMISSION
4 YEARLY REVIEW OF MODERN AWARDS
AWARD STAGE – GROUPS 3 AND 4**

Matter Nos: AM2014/281 (*Professional Employees Award 2010*)
AM2015/6 (Education Group)

Applicants: The Association of Australian Medical Research Institutes (**AAMRI**) and the Association for Professional Engineers, Scientists and Managers, Australia (**APESMA**)

**OUTLINE OF SUBMISSIONS OF
THE ASSOCIATION OF AUSTRALIAN MEDICAL RESEARCH INSTITUTES
AND
THE ASSOCIATION FOR PROFESSIONAL ENGINEERS, SCIENTISTS AND MANAGERS
AUSTRALIA**

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INTRODUCTION

1. These submissions are made on behalf of the Association of Australian Medical Research Institutes (**AAMRI**) and the Association for Professional Engineers, Scientists and Managers, Australia (trading as Professionals Australia) (**APESMA** or **PA**) as part of the 4 yearly review of modern awards (**Review**).
2. AAMRI is the peak body for health and medical research institutes (**MRIs**) from across Australia. AAMRI's role is to represent organisations with a central focus on health and medical research through advocacy, information provision, relationship building and member services.
3. APESMA is a registered organisation under the *Fair Work (Registered Organisations) Act 2009* representing a broad range of employees including, amongst others, Professional Engineers, Professional Scientists, Architects, Retail Pharmacists, and generalist managers.
4. APESMA's coverage of Professional Scientists includes a diverse range of scientific disciplines and occupations. This is outlined in the witness statement of APESMA Chief Executive Officer Christopher Walton at [3] to [8]. Included in the Association's coverage are those professionals employed as medical researchers.

BACKGROUND

Transitional Review Proceedings

5. Pursuant to Schedule 5, Item 6 of the *Fair Work (Transitional Provisions and Consequential Amendments) Act 2009*, the Commission conducted a transitional review of all modern awards starting in 2012 (**Transitional Review**).
6. On 8 March 2012, the National Tertiary Education Industry Union (**NTEU**) made applications to vary the *Higher Education Industry - Academic Staff - Award 2010* (MA000006) (**Academic Award**) and the *Higher Education Industry - General Staff - Award 2010* (MA000007) (**General Staff Award**) (or collectively, the **Higher Education Awards**) with the effect that the Academic Award and the General Staff Award cover employees of MRIs.
7. On 14 October 2013, Deputy President Smith dismissed the NTEU's application in *National Tertiary Education Industry Union* [2013] FWC 7947 (**Transitional Review Decision**). In addition, DP Smith at [35] found that the *Professional Employees Award 2010* (**PEA**)'s coverage of independent MRI employees in research was "awkward".

Current Proceedings

8. On 16 October 2015, AAMRI and APESMA made an application to the Fair Work Commission for variations to the PEA with the effect that the coverage of that award be extended to medical researchers employed by independent MRIs¹ who do not hold a science degree from an Australian, NZ or UK university, and contain specific descriptions of its coverage of medical researchers (the **Application**).
9. Previously, on 2 March 2015, the NTEU had made applications to vary the Higher Education Awards in similar terms to the NTEU's application in the Transitional Review (**NTEU Applications**).
10. The NTEU Applications were referred to a Full Bench as part of matter number AM2015/6.
11. AAMRI and APESMA sought that the Application be joined with the NTEU Applications:
 - (a) in submissions in respect of AM2014/281 dated 16 October 2015;
 - (b) in submissions in respect of AM2015/6 dated 16 October 2015;
 - (c) in an outline of submissions in respect of AM2014/281 dated 12 November 2015, made pursuant to the directions of President Ross J dated 2 November 2015; and
 - (d) at a conference before Commissioner Johns conducted on 18 November 2015 in respect of AM2016/6.
12. On 27 November 2015, Commissioner Johns directed that:

*In respect of item 2 of Table 1 issued for each separate Award by the Commission on 11 November 2015, **Coverage of Research Institutes**, that the AAMRI and Professionals Australia (PA) application to vary the Professional Employees Award 2010 (AM2014/281) is **joined** with (AM2014/229 & AM2014/230), and to be dealt with in accordance with these directions.*
13. AAMRI and APESMA make this outline of submissions (**Submissions**) further to the submissions made above and in accordance with Direction 3 of the Directions issued by Commissioner Johns dated 27 November 2015.

¹ In these submissions from hereon in, when we refer to "medical researchers" we refer to those medical researchers employed by an independent MRI (as defined at paragraph 22(a) of these submissions) unless otherwise specified.

CONDUCT OF THE REVIEW AND LEGISLATIVE CONTEXT

14. In *4 Yearly Review of Modern Awards: Preliminary Jurisdictional Issues* [2014] FWCFB 1788 (**Issues Decision**), the Commission made several general observations about the Review, including that where a significant change is proposed it must be supported by a submission which addresses the relevant legislative provisions (at [60], observation 3).
15. Section 156(1) of the *Fair Work Act 2009* (**Act**) requires the Fair Work Commission (**Commission**) to conduct a "4 yearly review of modern awards" starting as soon as practicable after each 4th anniversary of the commencement of Part 2-3 of the Act. The commencement date was 1 January 2010.
16. Section 156(2)(b)(i) permits the Commission to make one or more determinations varying modern awards as part of the Review.
17. Section 134(2) of the Act requires that the Commission exercise its modern award powers, which include its functions or powers under Part 2-3 of the Act, in accordance with the modern awards objective. The power to vary awards contained in s 156(2)(b)(i) falls under Part 2-3 of the Act.
18. Section 134(1) sets out the modern awards objective, which the Full Bench noted is very broadly expressed and is directed at ensuring that modern awards, together with the National Employment Standards, provides a fair and relevant minimum safety net of terms and conditions (Issues Decision at [60], observation 4). Section 134(1) also lists the factors that the Commission must take into account in determining whether the modern awards objective has been met.
19. Section 138 of the Act provides that a modern award may include terms "only to the extent necessary to achieve the modern awards objective and (to the extent necessary) the minimum wages objective".
20. Section 163 of the Act sets out special criteria relating to changing coverage of modern awards. These are expanded upon below to the extent they are relevant.
21. The Full Bench in the Issues Decision also determined that the Commission will take into account previous decisions relevant to any contested issue (at [60], observation 3).

SUMMARY OF VARIATIONS SOUGHT

22. The Application proposes to vary the PEA so that:

- (a) it is easier to understand that the type of work performed by medical researchers employed by MRIs which are independent legal entities and have independent Boards governing their operations (**independent MRIs**) is covered by the PEA; and
- (b) its coverage is expanded to include:
 - (i) medical researchers who hold a degree in science that is not from an Australian, NZ or UK university; and
 - (ii) medical researchers who hold a degree that is not in science.

23. The Application seeks to do this by:

- (a) providing that the award covers "*medical research institutes with respect to their employees performing professional medical research duties who are covered by the classifications in Schedule C—Medical Research Institutes and those employees*";
- (b) inserting a "medical research industry" stream into the definitions clause which broadly reflects the existing scientist, engineer and information technology streams, which defines (among other terms):
 - (i) "professional medical research duties" as "*research duties carried out by a person in a medical research institute the adequate discharge of any portion of which requires a person to hold a university degree (three, four or five year course)*"; and
 - (ii) "medical research institutes" by reference to the "medical research industry", which is itself defined by reference to the activities and purpose of its participants – to "*undertake basic, applied, translational or clinical research*", and "*operate for the primary purpose of the advancement of the cure, diagnosis, prevention and treatment of disease*".
- (c) inserting a new Schedule C—Medical Research Institutes providing for classifications for professional medical research employees that take account of their technical specialisation and are more suited to the medical research industry.

24. The definition of "professional medical research duties" is broader than that for "professional scientific duties" in that it would include medical researchers, employed by independent MRIs, who hold a degree that is not from an Australian, NZ or UK university and/or is not in science. This will extend PEA coverage from 70.1% to 100% of medical researchers (ie an additional 29.9% of medical researchers, including 17.8% who are currently not covered because they hold a science degree from outside of Australia, NZ or the UK).

25. We note that the Application defines a "*medical research institute*" as "*a not-for-profit organisation participating in the medical research industry*" and proposes to expressly exclude from the definition those organisations operating for the primary purpose of the provision of health services, higher education organisations, and government agencies. For various historical reasons, scientists in those industries have not been included in the PEA's coverage due to their coverage by their relevant industry awards.
26. The Application also proposes to introduce an additional Schedule C to the PEA which contains classifications which more precisely describe the work of medical researchers. The proposed draft classifications address similar aspects to those in Schedule B, including: level of professional knowledge, supervision, originality of contributions, extent of adherence to guidelines, and capacity to assign work to other staff. These are addressed in similar terms but may be expressed in language more specific to a medical research environment, as opposed to the generality of the PEA as it is currently drafted. In contrast to Schedule B, the proposed Schedule C includes a Level 5 position to ensure that coverage is provided for medical researchers with higher levels of responsibility than may be covered by Level 4. AAMRI and APESMA propose that the minimum annual salary for this Level 5 classification be \$80,000.
27. The proposed classifications also introduce language more directly utilised by medical researchers, including:
- (a) contribution to the research direction of research teams and research projects;
 - (b) independent and original contribution to an area of research and its impact on health and community outcomes;
 - (c) production of research resulting in publications or impacting health guidelines, policy or advancements; and
 - (d) preparation of submissions to external funding bodies and other agencies.
28. The proposed variations to the PEA are set out in Appendix 1 to this outline of submissions.

MERITS OF THE APPLICATION

29. AAMRI and APESMA submit that the proposed variations sought in the Application are necessary to achieve the modern awards objective of a "fair and relevant minimum safety net of terms and conditions". In order to establish this, AAMRI and APESMA set out the following contentions:
- (a) the PEA currently:

- (i) covers 70.1% of medical researchers who are employed by independent MRIs who are members of AAMRI;
 - (ii) excludes 17.8% of medical researchers who have science degrees on the basis that those degrees are not from Australia, New Zealand or the United Kingdom; and
 - (iii) excludes 12.1% of medical researchers who have degrees in non-science fields (e.g. psychology, mathematics, health disciplines), but none-the-less perform medical research duties requiring the application of the scientific method.
- (b) it is appropriate for the Application to *extend* PEA coverage to *all* medical researchers employed by independent MRIs, as the work performed by *all* such medical researchers is the same as or similar to the work performed by scientific employees in other sectors who are also covered by the PEA, and extending coverage ensures that the PEA promotes the principle of equal remuneration for work of equal or comparable value;
- (c) the Application addresses the concern of DP Smith that the PEA's coverage is "awkward" by ensuring that the PEA provides *specific* coverage of medical researchers employed by independent MRIs, which will ensure an easy to understand modern award system;
- (d) the terms and conditions of the PEA are the most appropriate for all medical researchers in that, as it does for scientists in all sectors covered by the PEA, the PEA provides for flexible work practices appropriate to the varying needs and resources of independent MRIs and reflective of the work practices of medical researchers;
- (e) as the PEA currently applies to approximately 70.1% of medical researchers, the variations proposed by the Application will not negatively impact on the productivity, employment costs or regulatory burden of independent MRIs;
- (f) the Application will ensure a stable modern award system by meeting the modern awards objective in a way which causes minimal disruption to existing award coverage.

The PEA currently covers most medical researchers employed by independent MRIs

30. The PEA currently covers several streams of professional employees on a mixed occupational and industry basis. Relevantly, clause 4.1 provides that the PEA covers employees performing professional scientific duties, in the classifications specified in Schedule B. This coverage is on an occupational basis which is not limited to any particular industry.
31. "Professional scientific duties" is defined in clause 3.4 to mean duties the adequate discharge of which requires particular academic qualifications listed in that clause. Accordingly, the PEA currently covers scientists who hold the specified academic qualifications.
32. The academic qualifications specified in clause 3.4 are limited to the following:
- (a) *"a degree in science from an Australian, New Zealand or United Kingdom university of from an Australian tertiary educational institution"; or*
 - (b) academic qualifications acceptable for admission to membership of the listed Australian scientific institutes (such as the Royal Australian Chemical Institute).
33. We note that medical research does not have a peak scientific institute which recognises qualifications for admission, and accordingly we have determined current coverage on the basis of the first criterion only.

The vast majority of medical researchers employed by independent MRIs meet the PEA criteria

34. AAMRI and APESMA submit that the PEA's coverage of employees performing professional scientific duties includes medical researchers (both from independent MRIs and other employers) to the extent that they have an Australian, NZ or UK scientific degree or alternative qualifications acceptable to an Australian scientific institute.²
35. For an overall picture of the number of science professionals in the economy, more specifically the non-government sector, data published by the Australian Bureau of Statistics (ABS) and attached as Annexure H provides a useful overview. As outlined in the witness statement of Christopher Walton at [14] at the time of the 2011 Census, 74,251

² We note that we are aware of at least one independent MRI which employs engineers who perform research, and as such are covered by the PEA due to their performance of "professional engineering duties".

(91%) science professionals identified themselves as being employed outside higher education. A majority of these scientists will be covered by the PEA. Conversely, only 7,284 (9%) were employed in higher education. Although there are some scientists undertaking scientific duties in higher education, the vast bulk of non-government scientists are covered by the PEA.

36. AAMRI and APESMA refer to the witness statement of Douglas Hilton at [48], which explains that the medical research duties performed by medical researchers with a science degree require the skills and knowledge that such a degree confers.
37. The witness statement of Douglas Hilton at [56] sets out that 70.1% of medical researchers employed by independent MRIs who are members of AAMRI hold a science degree from an Australian, NZ or UK university or Australian tertiary educational institution. It follows that the majority of medical researchers are covered by the PEA.
38. We note that a further 17.8% of medical researchers are excluded on the basis that their degree in science is not from an Australian, NZ or UK university, therefore 87.9% of medical researchers are scientists. These may be covered if their qualifications would be acceptable for admission to one of the listed Australian scientific institutes. Information regarding the acceptability of employees' qualifications to such institutes has not been obtained as it is not a prerequisite for employment as a medical researcher and therefore not relevant. As Douglas Hilton says at [46] of his witness statement, in practice, independent MRIs employ medical researchers, some of whom are eminent in their particular field and who possess qualifications other than those awarded by an Australian, New Zealand or United Kingdom tertiary institution.

Scientific research is a subset of science

39. In the Transitional Review Decision, DP Smith stated, at [35], that the award referred to for independent MRI employees in research, being the PEA, "*would produce an awkward fit*". It is not clear from the decision or the transcript of the Transitional Review on what basis DP Smith found that independent MRI employees in research fit "awkwardly" into the PEA. However it is submitted that the award modernisation process leading to the creation of the PEA focussed on rationalising the number of pre-reform awards and consequently drafting a classification structure in order to reflect this. There was no consideration of whether specific job roles fitted within the definition of professional scientific duties and/or the classification definitions.
40. The Full Bench in the Issues Decision indicated at [27] that the Commission will take into account previous decisions relevant to any contested issue. However, DP Smith clarified at

[35] that his comment did not pronounce upon coverage of the award, which was perhaps not explored forensically in the course of those proceedings.

41. The only argument advanced by the NTEU against AAMRI's submission that the PEA covered medical researchers with a relevant science degree³ was that those MRI employees who had qualifications as scientists were "*working as researchers*".⁴ This argument sought to distinguish work "as a researcher" from the performance of "professional scientific duties".
42. AAMRI and APESMA repeat AAMRI's submission to the Transitional Review that the PEA covers those employees on the basis that a researcher with a science degree is a scientist.⁵
43. Scientific medical researchers are clearly scientists. The witness statement of Christopher Walton makes reference to a survey conducted by APESMA of employees of MRIs at Annexure F. The survey report which is titled "Best and Brightest: Advancing Medical Research" illustrates, at several quotes, that medical researchers refer to themselves as scientists. Reference is made to the annual Professional Scientists Remuneration Survey which is jointly conducted by APESMA and Science and Technology Australia (**STA**) (paragraph [7], Annexure C). STA is the peak body for scientific societies. The Professional Scientists Survey generates data from employees in order to provide an overview of the remuneration received by Professional Scientists. It includes data based on variables such as sector of employment, responsibility level, and branch of science, job function and the employee's highest qualification. Completed 2015 survey questionnaires were returned by 1,456 respondents from a broad range of industries.
44. The definition of professional scientific duties, and the associated academic qualifications, specified in clause 3.4 of the PEA are derived from pre-reform awards such as the *Scientific Services Professional Scientists Award 1998*.⁶ Similar formulations appeared in a variety of pre-reform awards and in some instances were introduced to reflect changes to the rules of

³ Transitional Review, AAMRI's "Outline of Submissions" (2 April 2013) at [42].

⁴ Transitional Review, NTEU's Outline Closing Submissions (3 June 2013) at [96].

⁵ Transitional Review, AAMRI's "Closing Outline of Submissions" (4 July 2013) at [99].

⁶ [AP797607] at clause 6.2.1.

the Association of Professional Scientists Australia (ASPA), a predecessor association to APESMA.⁷

45. The Australian Conciliation and Arbitration Commission (**ACAC**) considered the meaning of "a degree in science" and "employment as a scientist" in two decisions regarding the rules of APESA (a predecessor organisation to APESMA) and a variation to the *Municipal Officers' (Melbourne and Metropolitan Board of Works) Award 1971*.⁸ These decisions related to the coverage of foresters and surveyors. For its part the Municipal Officers Association had argued that in order to be employed as a Professional Scientist, employees needed to undertake work which was research orientated. The term "employment as a scientist" was found to involve the "*investigation of a branch of science*" and have broader connotations than "scientific research".⁹ This finding assumed that "scientific research" forms a subset of that investigation.
46. This finding was based on the decision of Justice Cohen in *The Municipal Officers' Association of Australia v The Association of Professional Scientists of Australia*.¹⁰ In considering the argument that employment as a scientist "must be primarily orientated to research", Her Honour found that:

*"The words 'employed as a scientist' in the APSA's eligibility rule should be seen as referring to the performance of general functions and, in my view, mean employed on the basis of scientific qualifications which in the judgment of the employer are required for an understanding of the functions to be performed and **which would enable research to be carried out if necessary**" [Emphasis added].¹¹*

47. These decisions are predicated on the assumption that research is a component of work as a scientist, even if not all scientists conduct research. AAMRI and APESMA submit that the coverage of the pre-reform awards from which the PEA was derived were informed by a conception of scientist which included researchers, and that such an interpretation was incorporated into the PEA.

⁷ See *The Municipal Officers' Association of Australia v The Association of Professional Scientists of Australia* M077 Mis 360/82 MD Print F0592 at pp 1-2.

⁸ Print B7525.

⁹ *The Association of Professional Scientists of Australia*, Reg 024/84 M Print F7239 at p 3.

¹⁰ M077 Mis 360/82 MD Print F0592.

¹¹ *Ibid*, at p 8.

Pre-reform coverage of MRIs

48. At [35] of the Transitional Review Decision, DP Smith stated "The history of the Professional Employees Award 2010...would reveal that research scientists in MRIs were not in contemplation when consideration was given to the terms of the award".
49. AAMRI and APESMA submit that, as the PEA is an occupational award, the Award Modernisation Full Bench never needed to set out those sectors to which the award would apply in the making of that award.
50. The materials before the Australian Industrial Relations Commission (**AIRC**) Full Bench in the award modernisation proceeding which led to the making of the PEA refer to:
- (a) the original proposal for the PEA in the award modernisation proceeding that specifically excluded the Howard Florey Institute of Experiential Physiology and Medicine (an independent MRI);¹² and
 - (b) Attachment B to the Full Bench Statement of 30 January 2009 (regarding, among other industries, "Scientific services (including Professional Engineers and Scientists)") included the *Queensland Institute of Medical Research (QIMR) Award 2003* [AN140241] as a relevant non-enterprise NAPSA.¹³
51. AAMRI and APESMA also note that independent MRIs were expressly contemplated by the pre-reform awards from which the PEA is derived.
52. For example the *Scientific Services Professional Scientists Award 1998* named the following independent MRIs as Respondents:¹⁴
- (a) Baker Medical Research Institute (now Baker IDI Heart & Diabetes Institute);¹⁵

¹² *Award Modernisation* [AM2008/1], APESMA's "Submission of the Association of Professional Engineers, Scientists and Managers, Australia", at Attachment B.

¹³ *Award Modernisation* [2009] AIRCFB 100. This indicates that QIMR (an independent MRI) would have been covered by the PEA if not for the fact that it is currently covered by the *State Government Agencies Award 2010*. To avoid overlapping coverage, government bodies are excluded from the Application's proposed definition of a medical research institute (as well as the NTEU Applications' definition of a research institute).

¹⁴ [AP797607]. We note that, per section 148(1) of the *Workplace Relations Act 1996* as at the time the relevant Roping-In Awards were made, this award displaced the coverage of these MRIs by the *Universities and Affiliated Institutions Academic Research Salaries (Victoria and Western Australia) Award 1989* [AP801440] insofar as it dealt with the salaries of professional scientists (including medical researchers).

¹⁵ *Ibid* at Roping In Award No. 2 of 2002, Schedule A.

- (b) Biomolecular Research Institute;¹⁶
- (c) Bionic Ear & Hearing Research Institute (now Bionics Institute);¹⁷ and
- (d) Reproductive Medicine Research Institute (now Keogh Institute for Medical Research).¹⁸

53. AAMRI and APESMA also note that the following pre-reform awards make express exclusions for some independent MRIs or universities:

- (a) the Common Rule Declaration in respect of the *Scientific Services Professional Scientists Award 1998* expressly excluded named Victorian universities and the Howard Florey Institute of Experimental Physiology and Medicine (now Florey Institute of Neuroscience and Mental Health), but failed to exclude any other independent MRIs.¹⁹
- (b) the following awards expressly excluded persons or scientists "employed by universities" but failed to exclude persons or scientists employed by independent MRIs:
 - (i) *Professional Engineers and Professional Scientists (Private Industry) (State) Award*,²⁰
 - (ii) *Professional Scientists Award – State*.²¹

54. Further to our submission above that the meaning of scientists in the PEA includes research scientists with the relevant science degree, the implication of the exclusions described above is that research scientists employed by those universities (and the Florey Institute) would otherwise have fallen within the definition of professional scientist. The absence of express exclusions for other independent MRIs is further evidence that research scientists at independent MRIs were covered by those pre-reform awards and the PEA.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Ibid at Roping In Award No. 1 of 1997, Schedule A.

¹⁹ [AW797607CRN] at clause 4.2.

²⁰ [AN120440] at clause 2.2.

²¹ [AN140228] at clause 1.4.3.

Classifications are appropriate

55. In the Transitional Review it was submitted by the NTEU that the descriptors in the classification structure of the PEA do not describe the research work performed by research scientists at independent MRIs.²² The NTEU disputed the coverage of medical researchers by the PEA partially on the basis that the classifications made "*no mention of research, publication or dissemination of work*".
56. By way of background, the current classification descriptors outlined in Schedule B of the PEA which apply to Professional Scientists have their origin in an applications to vary the Professional Scientists Award 1981 in order to give effect to the Structural Efficiency Principle in accordance with the August 1989 National Wage Case (Print H9100). An initial decision granted by Commissioner Harrison (Dec 164/92 S Print K1997) increased the number of classifications in the Award from two to four. This decision was appealed in matters C No.30801 and 30802 of 1992. A subsequent decision by a Full Bench (Dec 1718/95 S Print M3882) upheld Commissioner Harrison's decision.
57. The classification descriptors set out in Schedule B of the PEA do not purport to define job roles but are described as "responsibility levels". The responsibility levels are required to be read in conjunction with Clause 3.4 of the Award which sets out definitions which are relevant for the Scientists Stream. The definition of "professional scientific duties" are those duties "carried out by a person in any particular employment, the adequate discharge of any portion of which duties requires academic qualifications of the employee as specified in the academic schedule below". The academic schedule lists qualifications acceptable to a number of scientific institutes as outlined and in addition an overriding generic provision of a "degree in science from an Australian, New Zealand or United Kingdom tertiary educational institution".
58. As outlined in the witness statement of APESMA Chief Executive Officer Christopher Walton at [10], the descriptor "Professional Scientist" when applied to the potentially several thousand employers to whom the PEA applies covers a very diverse range of job roles, hence the appropriateness of broad responsibility levels in Schedule B.
59. We refer to the witness statement of Douglas Hilton at [49], which sets out how the work performed by medical researchers is in fact reflected in the general classifications in Schedule B of the PEA.

²² Transitional Review, NTEU's Outline Closing Submissions (3 June 2013) at [97].

60. AAMRI and APESMA accordingly submit that the PEA is not an "awkward fit" for medical researchers, and that the classifications in Schedule B adequately (although generally) describe the work of medical researchers employed by independent MRIs.

Extend coverage to all medical researchers employed by independent MRIs

61. Some medical researchers employed by independent MRIs are not being covered by the same safety net of minimum terms and conditions provided by the PEA. AAMRI and APESMA submit that it is appropriate for medical researchers with a science degree from an Australian, NZ or UK university to continue being covered by the PEA and for the 29.9% of medical researchers not currently covered to become covered by the PEA, including the 60% of that group which are degree qualified scientists (from countries other than Australia, NZ or UK).
62. Section 163(1) of the Act provides that when the Commission determines to vary an award so that an employee stops being covered by an award and starts being covered by another, the new award must be "*appropriate for them*".²³
63. In order for the Commission to achieve the modern awards objective, it must take into account the principle of equal remuneration for work of equal or comparable value (section 134(1)(e) of the Act). The AIRC in the award modernisation proceedings approved the submissions of the Minister for Workplace Relations that it was desirable for employees in the same occupation to receive the same terms and conditions, while acknowledging that it was undesirable to disturb established relativities within particular industries.²⁴
64. AAMRI and APESMA submit that:
- (a) medical researchers have the same or similar occupation to other scientists covered by the PEA;
 - (b) independent MRIs are not members of an industry with established relativities justifying departure from the terms of the PEA.
65. Scientists are employed in a range of sectors, including not for profit bodies (such as independent MRIs), government bodies (eg CSIRO), hospitals, universities and commercial organisations. A sub-set of these employees are captured under other modern awards such

²³ See also the Explanatory Memorandum to the Fair Work Bill 2008, item 623.

²⁴ *Award Modernisation* [2008] AIRCFB 1000 at [289].

as the *Higher Education Industry—Academic Staff—Award 2010*, the *State Government Agencies Award 2010* and the *Australian Public Service Enterprise Award 2015*, due to the unique factors of those industries. The remaining scientists are covered by the PEA. The witness statement of Christopher Walton at [6] states that there are over 650 workplaces where scientists who are APESMA members work and are covered by the PEA. The work done by scientists in mines, food manufacturers, biotechnology companies etc is the same ‘work’ as a scientist in an independent MRI. They perform scientific duties, utilising a scientific process, based on an underpinning qualification.

66. We refer to the witness statement of Douglas Hilton at [42] to [47], where it is stressed that:
- (a) the work performed by medical researchers has a strong parallel with the work performed by other scientists in research and development covered by the PEA;
 - (b) there is no difference in nature of the work performed by medical researchers who have graduated from an Australian, NZ or UK university and those from other universities; and
 - (c) the work performed by medical researchers with a degree in a non-science field (e.g. psychology, health disciplines) is of an equivalent value to that performed by medical researchers with a degree in science, in that they perform medical research duties requiring application of the scientific method and directed at achieving the independent MRI's purpose of undertaking research into improving the cure, diagnosis, prevention or treatment of disease.
67. AAMRI and APESMA accordingly submit that the PEA ought to provide the same minimum rates of pay to all MRI research scientists (including those with a degree from a university outside of Australia, New Zealand or the UK), as well as those medical researchers with non-science degrees which qualify them to perform medical research.

Application provides for *specific* coverage of medical researchers employed by independent MRIs

68. In order to achieve the modern awards objective, the Commission must take into account the need to ensure a simple and easy to understand modern award system (section 134(g) of the Act). AAMRI and APESMA accordingly submit that it is appropriate for the Commission, as part of the Review, to rectify any potential misunderstanding of coverage so as to make the PEA, and the modern award system, simpler and easier to understand.
69. These submissions clearly demonstrate that the PEA currently covers medical researchers employed by independent MRIs who hold a science degree from an Australian, NZ or UK

university. However, in order to address DP Smith's comment in the Transitional Review Decision that the PEA's coverage is "awkward", the PEA ought to be amended to more specifically state this coverage in the form proposed in the Application.

70. AAMRI and APESMA maintain their position that the definition of professional scientist and the classifications in Schedule B of the PEA currently describe the work done by medical researchers with the relevant science degree. However, the witness statement of Douglas Hilton at [50] demonstrates that the classification descriptions in the proposed Schedule C more specifically deal with the particular work performed by medical researchers in an independent MRI. This includes the sector's focus on linking health and medical research to improved health outcomes as well as peer reviewed scientific publication.
71. By providing for a coverage clause and classifications which more specifically express that medical researchers are covered by the PEA, the Application provides for a simpler and easier to understand modern awards system which better achieves the modern awards objective.

Appropriateness of the PEA to the needs of independent MRIs and the work practices of medical researchers employed by independent MRIs

72. AAMRI and APESMA submit that the terms and conditions of the PEA are most appropriate to cover the employment of medical researchers by independent MRIs.
73. The Issues Decision at [33] acknowledged that, in the process of achieving the modern awards objective, different outcomes between different modern awards would occur as a result of the diversity in the characteristics of employers and employees covered by different modern awards.
74. In the award modernisation process, the Full Bench of the AIRC at [13] noted that:

*We have received many detailed submissions concerning not only the appropriate boundaries between industries but also **the appropriate boundaries between industries and occupations** in relation to which modern awards might be made. Concerns have been expressed about maintaining existing union demarcations and respecting the historical boundaries between industries based not only on union demarcations but also on other factors such as the regulatory environment, training and qualifications and **the peculiar circumstances of the enterprises in the***

*industry. All of these issues will have to be worked through as part of the process.*²⁵
[Emphasis added].

75. On the basis of the above statements, AAMRI and APESMA submit that, in determining whether the PEA is an appropriate award for medical researchers employed by independent MRIs, the Commission ought to have regard to the particular circumstances of independent MRIs.
76. AAMRI and APESMA refer to and repeat the submissions of APESMA in the award modernisation process, which supported the creation of an occupational award to include professional scientists employed in the private (ie non-government) sector.
77. In APESMA's submission dated 6th March 2009 it was stated at [20]-[21] that.

In the private sector, however, classification structures and criteria remained specific to professional engineers and professional scientists, and award conditions of employment were developed having regard for the needs of professional employees and their employers.....As a consequence, occupational awards covering professional engineers and scientists have been in existence for over 40 years, are well received, recognised and understood.

78. This submission seems to have been accepted in that the Commission adopted APESMA's proposal for an occupational award in respect of professional scientists and included them in what was to become known as the Professional Employees Award. Subsequently the PEA has underpinned both individual and collective bargaining for professional scientists.
79. AAMRI and APESMA submit that the following attributes of independent MRIs, identified in the witness statement of Douglas Hilton at [30] to [36], make the PEA the appropriate modern award to continue to cover this sector:
 - (a) the unique funding arrangements for independent MRIs, which include predominantly fixed-term and project-specific grants as distinct from the block funding model of hospitals and universities. The incomes of independent MRIs are primarily generated from:
 - (i) individual research project grants (1-5 years duration) awarded by the federal government (often through the National Health and Medical Research Council

²⁵ *Re Request from the Minister for Employment and Industrial Relations — 28 March 2008 (Award Modernisation Case (2008))* [2008] AIRCFB 550

(NHMRC)) and other national, state or international charitable and health specific councils, trusts and foundations;

(ii) fundraising and donations; and

(iii) industry partnerships.

(b) the corporate structure and tax treatment of independent MRIs, in that they are Health Promotion Charities or Public Benevolent Institutions (set up as companies limited by guarantee or as other incorporated entities), and the unique tax arrangements of such organisations compared with other charities and organisations.

80. In the witness statement of Christopher Walton there is an outline of the involvement of APESMA within the MRI sector including the conduct of a survey of employees. The results of the survey were published in a survey report titled Best and Brightest: Advancing Medical Research. At paragraphs [21] to [26] a summary of the main findings is included which highlight the systemic problems within the sector. A plan of action to commence addressing the major issues is also put outlined.

81. A key example of terms and conditions contained in the PEA providing the flexibility so important to independent MRIs is Clause 18 – Ordinary hours of work and rostering. This clause provides for the right to be properly compensated for work outside ordinary hours but within a framework of flexibility in the method of remuneration.

82. It is the submission of AAMRI and APESMA that this achieves the appropriate balance between two factors that must be considered as part of the modern awards objective, namely:

(a) the need to promote flexible modern work practices and the efficient and productive performance of work (section 134(1)(d) of the Act); and

(b) the need to provide additional remuneration for employees working overtime, unsocial, irregular or unpredictable hours, weekends or public holidays (section 134(1)(da) of the Act).

83. Therefore the PEA provides a framework of a minimum safety net which provides for sufficient flexibility and can underpin individual and collective bargaining.

The Application will not negatively impact on independent MRIs

84. In considering whether the Application meets the modern awards objective, the Commission must take into account the likely impact of making the proposed variation on business, including on productivity, employment costs and regulatory burden (section 134(1)(f) of the Act).
85. In respect of the 29.9% of medical researchers who are not currently covered by the PEA, the witness statement of Douglas Hilton at [51] states that independent MRIs already provide terms and conditions equivalent to or in excess of the PEA to their medical researchers.
86. AAMRI and APESMA accordingly submit that the Application will have a negligible impact on productivity, employment costs or regulatory burden.

Minimal disruption to the modern awards system

87. The Full Bench in the Issues Decision noted that the proponent of a variation must demonstrate that the terms of the modern award as varied are **necessary** to achieve the modern awards objective, pursuant to s 138. In considering the meaning of s 138, the Full Bench in the Issues Decision at [39] determined to apply the observations of Tracey J in *Shop, Distributive and Allied Employees Association v National Retail Association (No 2) (SDA v NRA (No 2))* in regard to the same phrase in s 157. In that decision, His Honour commented that he had not overlooked that:

*"a distinction must be drawn between that which is necessary and that which is desirable. That which is necessary must be done. That which is desirable does not carry the same imperative for action."*²⁶

88. Section 134(1)(g) of the Act provides that the Commission must consider the need to ensure a stable modern award system in determining whether a variation meets the modern awards objective. At [24] of the Issues Decision, the Full Bench found that there was a legislative acceptance that *"at the time they were made the modern awards...were consistent with the modern awards objective"*.
89. It is to be assumed *prima facie* that the modern awards system achieved the modern awards objective at the time it was made.²⁷

²⁶ *Shop, Distributive and Allied Employees Association v National Retail Association (No 2)* (2012) 205 FCR 227 at [46].

90. Accordingly, the Commission is compelled to adopt whichever proposed variation is necessary to achieve the modern awards objective, and which does so with minimal disruption to the existing modern award system.
91. AAMRI and APESMA have submitted above that most employees sought to be covered by this Application are already covered by the existing terms of the PEA.
92. The effect of the Application, if granted, would be that the remaining independent MRI employees undertaking medical research but not currently covered by the PEA will now be covered by an award with no disruption to those employees who are already covered.
93. AAMRI and APESMA submit that the effect of the Application as described goes only so far as necessary to more clearly meet the modern awards objective.

Neutral considerations

94. At [32] of its Issues Decision, the Full Bench accepted that not all of the factors listed in s 134(1) will be relevant in the context of a particular proposal to vary a modern award. AAMRI and APESMA submit that the following factors ought to be considered neutral considerations in the Commission's consideration of the Application:
 - (a) relative living standards and the needs of the low paid (section 134(1)(a) of the Act);
 - (b) the need to encourage collective bargaining (section 134(1)(b) of the Act);
 - (c) the need to promote social inclusion through increased workforce participation (section 134(1)(c) of the Act); and
 - (d) the likely impact of any exercise of modern award powers on employment growth, inflation and the sustainability, performance and competitiveness of the national economy (section 134(1)(h) of the Act).

Dr Nicole den Elzen
Director, Policy & Operations
AAMRI

Michael Butler
Director Industrial Relations
APESMA

²⁷ Issues Decision at [24].

Professional Employees Award 2010

This Fair Work Commission consolidated modern award incorporates all amendments up to and including 18 June 2015 ([PR566741](#)).

Clauses affected by the most recent variations:

15—Minimum wages

19—Annual leave

Current review matter(s): [AM2014/47](#); [AM2014/190](#); [AM2014/196](#); [AM2014/197](#); [AM2014/281](#); [AM2014/300](#); [AM2014/306](#); [AM2015/1](#); [AM2015/2](#)

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Part 1—Application and Operation

1. Title

This award is the *Professional Employees Award 2010*.

2. Commencement and transitional

[Varied by [PR991573](#), [PR542185](#)]

2.1 This award commences on 1 January 2010.

2.2 The monetary obligations imposed on employers by this award may be absorbed into overaward payments. Nothing in this award requires an employer to maintain or increase any overaward payment.

2.3 This award contains transitional arrangements which specify when particular parts of the award come into effect. Some of the transitional arrangements are in clauses in the main part of the award. There are also transitional arrangements in Schedule A. The arrangements in Schedule A deal with:

- minimum wages and piecework rates
- casual or part-time loadings
- Saturday, Sunday, public holiday, evening or other penalties
- shift allowances/penalties.

[2.4 varied by [PR542185](#) ppc 04Dec13]

2.4 Neither the making of this award nor the operation of any transitional arrangements is intended to result in a reduction in the take-home pay of employees covered by the award. On application by or on behalf of an employee who suffers a reduction in take-home pay as a result of the making of this award or the operation of any transitional arrangements, the Fair Work Commission may make any order it considers appropriate to remedy the situation.

[2.5 varied by [PR542185](#) ppc 04Dec13]

2.5 The Fair Work Commission may review the transitional arrangements in this award and make a determination varying the award.

[2.6 varied by [PR542185](#) ppc 04Dec13]

2.6 The Fair Work Commission may review the transitional arrangements:

- (a) on its own initiative; or
- (b) on application by an employer, employee, organisation or outworker entity covered by the modern award; or

- (c) on application by an organisation that is entitled to represent the industrial interests of one or more employers or employees that are covered by the modern award; or
- (d) in relation to outworker arrangements, on application by an organisation that is entitled to represent the industrial interests of one or more outworkers to whom the arrangements relate.

3. Definitions and interpretation

[Varied by [PR991335](#), [PR994537](#), [PR997772](#), [PR503697](#), [PR546041](#)]

3.1 In this award, unless the contrary intention appears:

Act means the *Fair Work Act 2009* (Cth)

[Definition of **agreement-based transitional instrument** inserted by [PR994537](#) from 01Jan10]

agreement-based transitional instrument has the meaning in the *Fair Work (Transitional Provisions and Consequential Amendments) Act 2009* (Cth)

award-based transitional instrument has the meaning in the *Fair Work (Transitional Provisions and Consequential Amendments) Act 2009* (Cth)

carry includes transmit, switch or receive

communications includes any communication whether between persons and persons, things and things or persons and things, and whether in the form of:

- (a) speech, music, or other sounds;
- (b) data;
- (c) text;
- (d) visual images, whether or not animated; or
- (e) signals,

in any other form or other combination of forms

core competency standards means the competency standards developed for a graduate's relevant professional discipline. Progress by a graduate towards attaining core competency standards will be assessed by comparison with the specified performance criteria.

[Definition of **default fund employee** inserted by [PR546041](#) ppc 01Jan14]

default fund employee means an employee who has no chosen fund within the meaning of the *Superannuation Guarantee (Administration) Act 1992* (Cth)

[Definition of **defined benefit member** inserted by [PR546041](#) ppc 01Jan14]

defined benefit member has the meaning given by the *Superannuation Guarantee (Administration) Act 1992* (Cth)

diplomate means a Qualified scientist who has completed the requirements for the award of an institute of technology diploma qualifying a person in accordance with the Academic Schedule

[Definition of **Division 2B State award** inserted by [PR503697](#) ppc 01Jan11]

Division 2B State award has the meaning in Schedule 3A of the *Fair Work (Transitional Provisions and Consequential Amendments) Act 2009* (Cth)

[Definition of **Division 2B State employment agreement** inserted by [PR503697](#) ppc 01Jan11]

Division 2B State employment agreement has the meaning in Schedule 3A of the *Fair Work (Transitional Provisions and Consequential Amendments) Act 2009* (Cth)

[Definition of **employee** substituted by [PR997772](#) from 01Jan10]

employee means national system employee within the meaning of the Act

[Definition of **employer** substituted by [PR997772](#) from 01Jan10]

employer means national system employer within the meaning of the Act

enterprise award-based instrument has the meaning in the *Fair Work (Transitional Provisions and Consequential Amendments) Act 2009* (Cth)

[Definition of **exempt public sector superannuation scheme** inserted by [PR546041](#) ppc 01Jan14]

exempt public sector superannuation scheme has the meaning given by the *Superannuation Industry (Supervision) Act 1993* (Cth)

in-service training means the formal and/or informal work-related learning activities undertaken by a technology based graduate through opportunities provided by the employer, which contribute to professional development and efficiency. This includes supervised and unsupervised work experience to increase the breadth and/or depth of knowledge and the skills acquired by the graduate in specific areas of professional practice.

[Definition of **MySuper product** inserted by [PR546041](#) ppc 01Jan14]

MySuper product has the meaning given by the *Superannuation Industry (Supervision) Act 1993* (Cth)

NES means the National Employment Standards as contained in [sections 59 to 131](#) of the *Fair Work Act 2009* (Cth)

[Definition of **on-hire** inserted by [PR994537](#) from 01Jan10]

on-hire means the on-hire of an employee by their employer to a client, where such employee works under the general guidance and instruction of the client or a representative of the client

supervision means the oversight, direction, instruction, guidance and/or support provided to a graduate by the experienced professional responsible for ensuring the graduate is not placed in situations where required to function beyond their competence

[Definition of **transitional minimum wage instrument** inserted by [PR994537](#) from 01Jan10]

transitional minimum wage instrument has the meaning in the *Fair Work (Transitional Provisions and Consequential Amendments) Act 2009* (Cth)

3.2 Engineering stream

Experienced engineer means a Professional engineer with the undermentioned qualifications engaged in any particular employment where the adequate discharge of any portion of the duties requires qualifications of the employee as (or at least equal to those of) a member of Engineers Australia. The qualifications are as follows:

- (a) membership of Engineers Australia; or
- (b) having graduated in a four or five year course at a university recognised by Engineers Australia, four years' experience on professional engineering duties since becoming a Qualified engineer; or
- (c) not having so graduated, five years of such experience.

Graduate engineer means a person who is the holder of a university degree (four or five year course) recognised by Engineers Australia or is the holder of a degree, diploma or other testamur which:

- (d) has been issued by a technical university, an institute of technology, a European technical high school (technische hochschule) or polytechnic or other similar educational establishment; and
- (e) is recognised by Engineers Australia as attaining a standard similar to a university degree; and has been issued following:
 - (i) a course of not less than four years duration for a full-time course after a standard of secondary education not less than the standard of examination for matriculation to an Australian university; or
 - (ii) a part-time course of sufficient duration to obtain a similar standard as a four year full-time course after a similar standard of secondary education.

Professional engineer means a person qualified to carry out professional engineering duties as defined. The term Professional engineer will embrace and include Graduate engineer and Experienced engineer as defined in this clause.

professional engineering duties means duties carried out by a person in any particular employment, the adequate discharge of any portion of which duties requires qualifications of the employee as (or at least equal to those of) a graduate member of Engineers Australia

3.3 Information technology and telecommunications services stream

information technology industry means:

- (a) the design and manufacture of computers and computer peripherals;
- (b) the design and manufacture of telecommunications equipment;
- (c) the design and manufacture of computer software;

- (d) computer system installation, repair and maintenance;
- (e) computer consultancy services;
- (f) computer programming;
- (g) system analysis services;
- (h) the design, development and maintenance of online internet architecture and the facilitation of online content management; or
- (i) activities which are incidental, ancillary or complementary to the activities set out in this definition.

Experienced information technology employee means a professional information technology employee with the undermentioned qualifications in any particular employment the adequate discharge of any portion of the duties of which employment requires:

- (a) that they have graduated with a university degree, with a science or information technology major (three, four or five year course) and had four years' experience on professional information technology duties since graduating; or
- (b) that they, not having so graduated, have sufficient qualifications and experience to be eligible for admission as a member of the Australian Computer Society plus a further four years' experience on professional information technology duties.

Graduate information technology employee means a person who:

- (a) holds a university degree with a science or information technology major (three, four or five year course) accredited by the Australian Computer Society at professional level; or
- (b) has sufficient qualifications and experience to be eligible for admission as a member of the Australian Computer Society.

professional information technology duties means duties carried out by a person in any particular employment the adequate discharge of any portion of which duties requires a person to:

- (a) hold a university degree with a science or information technology major (three, four or five year course) accredited by the Australian Computer Society at professional level; or
- (b) have sufficient qualifications and experience to be eligible for admission as a member of the Australian Computer Society.

Professional information technology employee means an adult person qualified to carry out professional information technology duties as defined. The term Professional information technology employee will embrace and include Graduate information technology employee and Experienced information technology employee as defined.

telecommunications service means a service for carrying communications by means of guided or unguided electromagnetic energy or both

telecommunications services industry means:

- (a) the supply and/or installation and/or maintenance of telecommunications services; or
- (b) the supply and/or installation and/or maintenance of value added telecommunications services; or
- (c) incidental, ancillary or complementary to the supply and/or installation and/or maintenance of telecommunications services; or
- (d) the installation and/or maintenance of telecommunications equipment and line.

3.4 **Scientist Stream**

Experienced scientist means a Professional scientist possessing the following qualifications and engaged in any particular employment, the adequate discharge of any portion of the duties of which, requires the possession of such qualifications.

The qualifications are:

- (a) that they will have had further experience on professional scientific duties, after obtaining their degree or diploma, as follows:
 - (i) when a graduate (four or five year course) – four years' experience;
 - (ii) when a graduate (three year course) – five years' experience, or
- (b) that they possess qualifications acceptable to:
 - (i) the Royal Australian Chemical Institute for admission to the grade of Associate member; or
 - (ii) the Australian Institute of Physics for admission to the grade of member; or
 - (iii) the Australasian Institute of Mining and Metallurgy for admission to the grade of Associate member; or
 - (iv) the Australian Institute of Food Science and Technology for admission to the grade of Associate member.

Professional scientist means a person qualified to carry out professional scientific duties as defined. The term Professional scientist will embrace and include Qualified scientist and Experienced scientist as defined.

professional scientific duties means duties carried out by a person in any particular employment, the adequate discharge of any portion of which duties requires academic qualifications of the employee as specified in the academic schedule below:

[Academic schedule inserted by [PR994537](#) from 01Jan10]

Academic schedule

- (a) A degree in science from an Australian, New Zealand or United Kingdom university or from an Australian tertiary educational institution.
- (b) Academic qualifications acceptable to the Royal Australian Chemical Institute for admission to the grade of corporate membership.
- (c) Academic qualifications acceptable to The Australian Institute of Physics for admission to the grades of graduate membership or corporate membership.
- (d) Academic qualifications in metallurgy, metallurgical engineering or technology acceptable to either the Australasian Institute of Mining and Metallurgy for admission to the grade of junior or corporate membership, or the Institution of Metallurgists (London) for admission to the grades of graduate or associate membership.
- (e) Academic qualifications acceptable to the Australian Institute of Agricultural Science for admission to the grade of corporate membership.
- (f) Academic qualifications acceptable to the Australian Institute of Food Science and Technology for admission to the grades of graduate or corporate membership.
- (g) Academic qualifications acceptable to a pharmacy board or council within the Commonwealth of Australia provided that the award will not apply to pharmacists employed in a retail pharmacy shop.

[3.4(c) deleted by [PR994537](#) from 01Jan10]

3.5 Qualified scientist means a Professional scientist other than an Experienced scientist as defined, that is, a person possessing academic qualifications as specified in the academic schedule

3.6 Quality auditing stream

quality auditing industry means that industry the participants in which provide advisory, auditing and assessment services to companies which are pursuing quality improvement programs (in compliance with the International Standards Organisations quality standards)

quality auditor/senior (lead) quality auditor means for the purposes of this award the classifications as outlined in Schedule B—Classification Structure and Definitions

Quality auditing means the duties carried out by a person in any particular employment within the quality auditing industry, the adequate discharge of any portion of which duties requires qualifications.

The educational qualifications and experiences are as follows:

Educational requirements

- (a) Auditors will have successfully completed a course of study, after completing secondary education, involving a minimum of 600 hours direct contact and

leading to an award from a recognised body, college or university. Equivalent distance learning courses or corporate/professional membership of a recognised professional institution will also be recognised.

- (b) In all cases, documentary evidence of the educational standard claimed will be required. Copies of degrees or certificates will be required as objective evidence to satisfy the educational requirement. Verification of the awards will be as follows:
 - (i) originals (which are to be returned after sighting by an officer of the auditor certification body);
 - (ii) photocopies which have been signed as verified by one of the applicant's sponsors; or
 - (iii) a letter from the qualifying authority, e.g. university or college, confirming the award made.
- (c) As an alternative, auditors may be considered for certification if they can demonstrate eight years full-time work experience and satisfy the auditor certification body they have achieved a satisfactory educational standard including communication oral and written skills necessary to conduct and/or manage audits.

Experience requirement

Auditors will have a minimum of two years' relevant experience in the implementation and/or application of quality management systems which provides the practical knowledge necessary to effectively audit such systems. The quality management system experience required may be concurrent with work experience, but must have been achieved in the six years prior to initial certification.

Auditing experience requirement

- (a) All levels of auditor will maintain an audit log in order to demonstrate that their auditing experience was gained under the prescribed conditions and within the required time frame.
- (b) For all levels of auditor, only independent audits satisfy the auditing experience requirements. The auditor and the auditor's organisation will have independent management and operating structure from the audited organisation. Examples of acceptable relationships are:
 - (i) a head office audit of a plant or division;
 - (ii) one division of plant auditing another division or plant;
 - (iii) a customer organisation auditing a supplier;
 - (iv) a third party certification audit; or
 - (v) a consultant contracted to provide an independent audit.

3.7 Medical research industry stream

medical research industry means that industry in which the participants:

- (a) undertake basic, applied, translational or clinical research; and
- (b) operate for the primary purpose of the advancement of the cure, diagnosis, prevention and treatment of disease.

Experienced medical research employee means a Professional medical research employee with the undermentioned qualifications and employed by a medical research institute in employment the adequate discharge of any portion of the duties of which employment requires that:

- (a) they have graduated with a PhD; or
- (b) they have graduated with a Masters degree that is deemed as sufficient by their employer; or
- (c) they, not having so graduated, will have had further experience in professional medical research duties, after obtaining their university degree, as follows:
 - (i) when a graduate (four or five year course) – four years' experience;
 - (ii) when a graduate (three year course) – five years' experience.

Graduate medical research employee means a Professional medical research employee, other than an Experienced medical research employee, who holds a university degree (three, four or five year course) or equivalent.

health services means activities that are intended or claimed by the entity performing them to:

- (a) assess, maintain or improve an individual's health;
- (b) diagnose an individual's illness, injury or disability; or
- (c) treat an individual's illness, injury or disability or suspected illness, injury or disability.

higher education organisation means an educational institution providing undergraduate and post-graduate teaching leading to the conferring of degrees.

medical research institute means a not-for-profit organisation participating in the medical research industry but does not include:

- (a) organisations operating for the primary purpose of the provision of health services;
- (b) higher education organisations as defined;
- (c) Commonwealth, State or Territory government agencies.

Professional medical research employee means a person qualified to carry out professional medical research duties as defined. The term Professional medical research employee will embrace and include Graduate medical research employee and Experienced medical research employee as defined in this clause.

~~_____~~ professional medical research duties means research duties carried out by a person in a medical research institute the adequate discharge of any portion of which duties requires a person to hold a university degree (three, four or five year course).

~~3.73.8~~ Where this award refers to a condition of employment provided for in the NES, the NES definition applies.

4. Coverage

[Varied by [PR992791](#), [PR994537](#)]

4.1 This award covers employers throughout Australia with respect to their employees performing professional engineering and professional scientific duties who are covered by the classifications in Schedule B—Classification Structure and Definitions of the award and those employees.

~~4.2~~ This award covers employers throughout Australia principally engaged in the information technology industry, the quality auditing industry or the telecommunications services industry and their employees who are covered by the classifications in Schedule B.

~~4.3~~ This award covers medical research institutes with respect to their employees performing professional medical research duties who are covered by the classifications in Schedule C—Medical Research Institutes and those employees.

~~4.2~~ _____

[4.3 varied by [PR992791](#) from 22Jan10]

~~4.34.4~~ The award does not cover employees who are covered by the following awards:

- (a) *Airport Employees Award 2010*;
- (b) *Black Coal Mining Industry Award 2010*;
- (c) *Electrical Power Industry Award 2010*;
- (d) *Nurses Award 2010*;
- ~~(d)~~(e) *Port Authorities Award 2010*;
- ~~(e)~~(f) *Rail Industry Award 2010*;
- ~~(f)~~(g) *State Government Agencies Administration Award 2010*; and
- ~~(g)~~(h) *Water Industry Award 2010*.

~~4.44.5~~ The award does not cover employees of a local government covered by another award.

~~4.54.6~~ The award does not cover an employee excluded from award coverage by the Act.

~~4.64.7~~ The award does not cover employees who are covered by a modern enterprise award, or an enterprise instrument (within the meaning of the *Fair Work (Transitional*

Provisions and Consequential Amendments) Act 2009 (Cth)), or employers in relation to those employees.

[New 4.7, 4.8 and 4.9 inserted by [PR994537](#) from 01Jan10]

4.74.8 The award does not cover employees who are covered by a State reference public sector modern award, or a State reference public sector transitional award (within the meaning of the *Fair Work (Transitional Provisions and Consequential Amendments) Act 2009 (Cth)*), or employers in relation to those employees.

4.84.9 This award covers any employer which supplies labour on an on-hire basis in the industries set out in clauses 4.1 and 4.2 in respect of on-hire employees in classifications covered by this award, and those on-hire employees, while engaged in the performance of work for a business in those industries. This subclause operates subject to the exclusions from coverage in this award.

4.94.10 This award covers any employer which supplies on-hire employees in classifications set out in Schedule B and Schedule C and those on-hire employees, if the employer is not covered by another modern award containing a classification which is more appropriate to the work performed by the employee. This subclause operates subject to the exclusions from coverage in this award.

[4.7 renumbered as 4.10 by [PR994537](#) from 01Jan10]

4.104.11 Where an employer is covered by more than one award, an employee of that employer is covered by the award classification which is most appropriate to the work performed by the employee and to the environment in which the employee normally performs the work.

NOTE: Where there is no classification for a particular employee in this award it is possible that the employer and that employee are covered by an award with occupational coverage.

5. Access to the award and the National Employment Standards

The employer must ensure that copies of this award and the NES are available to all employees to whom they apply either on a noticeboard which is conveniently located at or near the workplace or through electronic means, whichever makes them more accessible.

6. The National Employment Standards and this award

The [NES](#) and this award contain the minimum conditions of employment for employees covered by this award.

7. Award flexibility

[Varied by [PR542185](#)]

7.1 Notwithstanding any other provision of this award, an employer and an individual employee may agree to vary the application of certain terms of this award to meet the genuine individual needs of the employer and the individual employee. The terms the employer and the individual employee may agree to vary the application of are those concerning:

- (a) arrangements for when work is performed;
- (b) overtime rates;
- (c) penalty rates;
- (d) allowances; and
- (e) leave loading.

[7.2 varied by [PR542185](#) ppc 04Dec13]

7.2 The employer and the individual employee must have genuinely made the agreement without coercion or duress. An agreement under this clause can only be entered into after the individual employee has commenced employment with the employer.

7.3 The agreement between the employer and the individual employee must:

- (a) be confined to a variation in the application of one or more of the terms listed in clause 7.1; and

[7.3(b) varied by [PR542185](#) ppc 04Dec13]

- (b) result in the employee being better off overall at the time the agreement is made than the employee would have been if no individual flexibility agreement had been agreed to.

7.4 The agreement between the employer and the individual employee must also:

- (a) be in writing, name the parties to the agreement and be signed by the employer and the individual employee and, if the employee is under 18 years of age, the employee's parent or guardian;
- (b) state each term of this award that the employer and the individual employee have agreed to vary;
- (c) detail how the application of each term has been varied by agreement between the employer and the individual employee;
- (d) detail how the agreement results in the individual employee being better off overall in relation to the individual employee's terms and conditions of employment; and
- (e) state the date the agreement commences to operate.

7.5 The employer must give the individual employee a copy of the agreement and keep the agreement as a time and wages record.

7.6 Except as provided in clause 7.4(a) the agreement must not require the approval or consent of a person other than the employer and the individual employee.

7.7 An employer seeking to enter into an agreement must provide a written proposal to the employee. Where the employee's understanding of written English is limited the employer must take measures, including translation into an appropriate language, to ensure the employee understands the proposal.

7.8 The agreement may be terminated:

[7.8(a) varied by [PR542185](#) ppc 04Dec13]

- (a) by the employer or the individual employee giving 13 weeks' notice of termination, in writing, to the other party and the agreement ceasing to operate at the end of the notice period; or
- (b) at any time, by written agreement between the employer and the individual employee.

[Note inserted by [PR542185](#) ppc 04Dec13]

Note: If any of the requirements of s.144(4), which are reflected in the requirements of this clause, are not met then the agreement may be terminated by either the employee or the employer, giving written notice of not more than 28 days (see s.145 of the *Fair Work Act 2009* (Cth)).

[New 7.9 inserted by [PR542185](#) ppc 04Dec13]

- 7.9** The notice provisions in clause 7.8(a) only apply to an agreement entered into from the first full pay period commencing on or after 4 December 2013. An agreement entered into before that date may be terminated in accordance with clause 7.8(a), subject to four weeks' notice of termination.

[7.9 renumbered as 7.10 by [PR542185](#) ppc 04Dec13]

- 7.10** The right to make an agreement pursuant to this clause is in addition to, and is not intended to otherwise affect, any provision for an agreement between an employer and an individual employee contained in any other term of this award.

8. Facilitative provision

- 8.1** This award contains facilitative provisions which allow agreement between an employer and/or majority of employees on how the award provisions are to apply at the workplace or enterprise level.

- 8.2** The following lists the facilitative provisions and the level of agreement required:

Clause	Subject matter
18.1	Ordinary hours of duty work rostered, by individual agreement
22.2(a)	Public holidays, by majority agreement
22.2(b)	Public holidays, by individual agreement

- 8.3** Agreements made pursuant to clause 8.2 must be recorded in writing and be available to every affected employee on request.

- 8.4** Facilitative provisions are not to be used as a device to avoid award obligations nor should they result in unfairness to an employee or employees covered by this award.

9. Consultation

[9—Consultation regarding major workplace change renamed and substituted by [PR546288](#) ppc 01Jan14]

9.1 Consultation regarding major workplace change

(a) Employer to notify

- (i) Where an employer has made a definite decision to introduce major changes in production, program, organisation, structure or technology that are likely to have significant effects on employees, the employer must notify the employees who may be affected by the proposed changes and their representatives, if any.
- (ii) **Significant effects** include termination of employment; major changes in the composition, operation or size of the employer's workforce or in the skills required; the elimination or diminution of job opportunities, promotion opportunities or job tenure; the alteration of hours of work; the need for retraining or transfer of employees to other work or locations; and the restructuring of jobs. Provided that where this award makes provision for alteration of any of these matters an alteration is deemed not to have significant effect.

(b) Employer to discuss change

- (i) The employer must discuss with the employees affected and their representatives, if any, the introduction of the changes referred to in clause 9.1(a), the effects the changes are likely to have on employees and measures to avert or mitigate the adverse effects of such changes on employees and must give prompt consideration to matters raised by the employees and/or their representatives in relation to the changes.
- (ii) The discussions must commence as early as practicable after a definite decision has been made by the employer to make the changes referred to in clause 9.1(a).
- (iii) For the purposes of such discussion, the employer must provide in writing to the employees concerned and their representatives, if any, all relevant information about the changes including the nature of the changes proposed, the expected effects of the changes on employees and any other matters likely to affect employees provided that no employer is required to disclose confidential information the disclosure of which would be contrary to the employer's interests.

9.2 Consultation about changes to rosters or hours of work

- (a) Where an employer proposes to change an employee's regular roster or ordinary hours of work, the employer must consult with the employee or employees affected and their representatives, if any, about the proposed change.
- (b) The employer must:
 - (i) provide to the employee or employees affected and their representatives, if any, information about the proposed change (for example, information

about the nature of the change to the employee's regular roster or ordinary hours of work and when that change is proposed to commence);

- (ii) invite the employee or employees affected and their representatives, if any, to give their views about the impact of the proposed change (including any impact in relation to their family or caring responsibilities); and
 - (iii) give consideration to any views about the impact of the proposed change that are given by the employee or employees concerned and/or their representatives.
- (c) The requirement to consult under this clause does not apply where an employee has irregular, sporadic or unpredictable working hours.
- (d) These provisions are to be read in conjunction with other award provisions concerning the scheduling of work and notice requirements.

10. Dispute resolution

[Varied by [PR542185](#)]

10.1 In the event of a dispute about a matter under this award, or a dispute in relation to the NES, in the first instance the parties must attempt to resolve the matter at the workplace by discussions between the employee or employees concerned and the relevant supervisor. If such discussions do not resolve the dispute, the parties will endeavour to resolve the dispute in a timely manner by discussions between the employee or employees concerned and more senior levels of management as appropriate.

[10.2 varied by [PR542185](#) ppc 04Dec13]

10.2 If a dispute about a matter arising under this award or a dispute in relation to the NES is unable to be resolved at the workplace, and all appropriate steps under clause 10.1 have been taken, a party to the dispute may refer the dispute to the Fair Work Commission.

[10.3 varied by [PR542185](#) ppc 04Dec13]

10.3 The parties may agree on the process to be utilised by the Fair Work Commission including mediation, conciliation and consent arbitration.

[10.4 varied by [PR542185](#) ppc 04Dec13]

10.4 Where the matter in dispute remains unresolved, the Fair Work Commission may exercise any method of dispute resolution permitted by the Act that it considers appropriate to ensure the settlement of the dispute.

10.5 An employer or employee may appoint another person, organisation or association to accompany and/or represent them for the purposes of this clause.

10.6 While the dispute resolution procedure is being conducted, work must continue in accordance with this award and the Act. Subject to applicable occupational health and safety legislation, an employee must not unreasonably fail to comply with a

direction by the employer to perform work, whether at the same or another workplace, that is safe and appropriate for the employee to perform.

Part 2—Types of Employment and Termination of Employment

11. Types of employment

11.1 Contract of employment

Employment may be full-time, part-time or casual.

11.2 Full-time employment

Any person not specifically engaged as being a part-time or casual employee is for all purposes of this award a full-time employee unless otherwise specified.

11.3 Part-time employment

- (a) An employee may be engaged for a specified number of ordinary hours each week being less than those hours prescribed in clause 18—Ordinary hours of work and rostering.
- (b) Such an employee will be paid pro rata the appropriate annual rate for the classification prescribed in clause 15—Minimum wages and will receive other conditions under this award at the same pro rata rate.
- (c) Any employee engaged on a full-time basis will not be converted to a part-time basis as set out in this clause without the employee's written agreement.

11.4 Casual employment

- (a) An employee may be engaged as a casual and must be paid an hourly rate calculated by converting the appropriate annual rate for the classification prescribed in clause 15 to an hourly rate and adding a loading of 25%.
- (b) Such loading is paid to compensate such casual employees for lack of continuity in employment, paid leave, termination and other employment benefits of a full-time or part-time employee.

11.5 Notification of conditions of employment

Employees engaged or employed by an employer covered by this award must be advised in writing by the employer of the conditions under which the employee is to be employed.

11.6 Notification of responsibility level

An employee must on appointment and/or upon request be informed by their employer of the responsibility level as described in Schedule B—Classification Structure and Definitions [or Schedule C—Medical Research Institutes](#) which the employer considers relevant to the employee's employment having regard to the duties performed by the employee concerned.

11.7 Evidence of qualifications

- (a) An employee who is employed under this award or who is an applicant for employment covered by this award, must if and when required to do so by the employer, produce to the employer written evidence that they possess or have acquired the qualifications of a Qualified engineer, Experienced engineer, Qualified scientist, Experienced scientist, Graduate information technology employee-~~or~~, Experienced information technology employee, [Graduate medical research employee or Experienced medical research employee](#).
- (b) Where an employee has failed to produce to the employer written evidence that they possess or have acquired the relevant qualifications and the employee subsequently claims to be entitled to payment at a rate prescribed by this award, it will be a defence to the employer if the employer establishes that during the said period the employer did not know and had no reason to believe that the employee had acquired the qualifications of a Qualified engineer, Experienced engineer, Qualified scientist, Experienced scientist, Graduate information technology employee-~~or~~, Experienced information technology employee, [Graduate medical research employee or Experienced medical research employee](#).

11.8 Professional development

- (a) It is understood and accepted that it is the responsibility of the employees to keep themselves informed of developments in their profession and to develop their professional knowledge and ability, and that it is appropriate for employees to be encouraged to undertake self-development programs.
- (b) Where the employee and the employer agree that an activity be undertaken by the employee as a component of a structured training program, the employer will meet all costs associated with the training.

12. Termination of employment

12.1 Notice of termination is provided for in the NES.

12.2 Instead of s.117(3)(a) of the Act, in order to terminate the employment of an employee the employer must give the employee one month's notice.

12.3 Notice of termination by an employee

The notice of termination required to be given by an employee is the same as that required of an employer except that there is no requirement on the employee to give additional notice based on the age of the employee concerned. If an employee fails to give the required notice the employer may withhold from any monies due to the employee on termination under this award or the NES, an amount not exceeding the amount the employee would have been paid under this award in respect of the period of notice required by this clause less any period of notice actually given by the employee.

12.4 Job search entitlement

Where an employer has given notice of termination to an employee, an employee must be allowed up to one day's time off without loss of pay for the purpose of

seeking other employment. The time off is to be taken at times that are convenient to the employee after consultation with the employer.

13. Redundancy

[Varied by [PR994537](#), [PR503697](#), [PR561478](#)]

13.1 Redundancy pay is provided for in the NES.

13.2 Transfer to lower paid duties

Where an employee is transferred to lower paid duties by reason of redundancy, the same period of notice must be given as the employee would have been entitled to if the employment had been terminated and the employer may, at the employer's option, make payment instead of an amount equal to the difference between the former ordinary time rate of pay and the ordinary time rate of pay for the number of weeks of notice still owing.

13.3 Employee leaving during notice period

An employee given notice of termination in circumstances of redundancy may terminate their employment during the period of notice. The employee is entitled to receive the benefits and payments they would have received under this clause had they remained in employment until the expiry of the notice, but is not entitled to payment instead of notice.

13.4 Job search entitlement

- (a) An employee given notice of termination in circumstances of redundancy must be allowed up to one day's time off without loss of pay during each week of notice for the purpose of seeking other employment.
- (b) If the employee has been allowed paid leave for more than one day during the notice period for the purpose of seeking other employment, the employee must, at the request of the employer, produce proof of attendance at an interview or they will not be entitled to payment for the time absent. For this purpose a statutory declaration is sufficient.
- (c) This entitlement applies instead of clause 12.4.

13.5 Transitional provisions – NAPSA employees

[13.5 varied by [PR994537](#); renamed by [PR503697](#); 13.5 deleted by [PR561478](#) ppc 05Mar15]

13.6 Transitional provisions – Division 2B State employees

[13.6 inserted by [PR503697](#); 13.6 deleted by [PR561478](#) ppc 05Mar15]

Part 3—Minimum Wages and Related Matters

14. Classifications

The classification definitions in Schedule B—Classification Structure and Definitions [and](#) [Schedule C—Medical Research Institutes](#) will apply.

15. Minimum wages

[15 varied by [PR997943](#), [PR509096](#), [PR522927](#), [PR536730](#), [PR551653](#), [PR566741](#) ppc 01Jul15]

The minimum annual wages payable to full-time employees in the classifications defined in Schedule B—Classification Structure and Definitions are:

Classification	Annual wages
	\$
Level 1 Graduate professional	
Pay point 1.1 (3 year degree)	45,668
Pay point 1.1 (4 or 5 year degree)	46,838
Pay point 1.2	47,625
Pay point 1.3	49,607
Pay point 1.4	52,119
Level 2 Experienced professional/quality auditor	53,875
Level 3 Professional/senior (lead) quality auditor	58,879
Level 4 Professional	66,407

16. Allowances

To view the current monetary amounts of work-related allowances refer to the [Allowances Sheet](#).

[Varied by [PR994537](#), [PR523048](#), [PR536851](#), [PR551774](#)]

16.1 Travelling expenses and travelling time

An employee will be reimbursed all reasonable expenses (including accommodation, meals and out-of-pocket expenses directly related to their employment) incurred while travelling on their employer's business. Reasonable compensation for excess travel time will be agreed upon.

16.2 Vehicle allowance

[16.2 varied by [PR523048](#), [PR536851](#), [PR551774](#) ppc 01Jul14]

In cases where it is mutually agreed that an employee will be required to use their private vehicle on the employer's business, the employee will be paid reasonable compensation, but in no case will the employee receive payment at a rate less than \$0.78 per kilometre travelled.

16.3 Equipment and special clothing

Except where an employee elects to provide equipment and special clothing, the employer will provide free of cost, all such equipment and special clothing reasonably required for the adequate discharge of duties. Such equipment or clothing will remain the property of the employer.

16.4 Adjustment of expense related allowances

[16.4(a) substituted by [PR994537](#) from 01Jan10]

- (a) At the time of any adjustment to wages as a result of an annual wage review, each expense related allowance will be increased by the relevant adjustment factor. The relevant adjustment factor for this purpose is the percentage movement in the applicable index figure most recently published by the Australian Bureau of Statistics since the allowance was last adjusted.
- (b) The applicable index figure is the index figure published by the Australian Bureau of Statistics for the Eight Capitals Consumer Price Index (Cat No. 6401.0), as follows:

Allowance	Applicable Consumer Price Index figure
Vehicle allowance	Private motoring sub-group

17. Superannuation

[Varied by [PR994537](#), [PR546041](#)]

17.1 Superannuation legislation

- (a) Superannuation legislation, including the *Superannuation Guarantee (Administration) Act 1992* (Cth), the *Superannuation Guarantee Charge Act 1992* (Cth), the *Superannuation Industry (Supervision) Act 1993* (Cth) and the *Superannuation (Resolution of Complaints) Act 1993* (Cth), deals with the superannuation rights and obligations of employers and employees. Under superannuation legislation individual employees generally have the opportunity to choose their own superannuation fund. If an employee does not choose a superannuation fund, any superannuation fund nominated in the award covering the employee applies.
- (b) The rights and obligations in these clauses supplement those in superannuation legislation.

17.2 Employer contributions

An employer must make such superannuation contributions to a superannuation fund for the benefit of an employee as will avoid the employer being required to pay the superannuation guarantee charge under superannuation legislation with respect to that employee.

17.3 Voluntary employee contributions

- (a) Subject to the governing rules of the relevant superannuation fund, an employee may, in writing, authorise their employer to pay on behalf of the employee a specified amount from the post-taxation wages of the employee into the same superannuation fund as the employer makes the superannuation contributions provided for in clause [17.2](#)~~17.2~~.
- (b) An employee may adjust the amount the employee has authorised their employer to pay from the wages of the employee from the first of the month following the giving of three months' written notice to their employer.

- (c) The employer must pay the amount authorised under clauses 17.3(a) or (b) no later than 28 days after the end of the month in which the deduction authorised under clauses 17.3(a) or (b) was made.

17.4 Superannuation fund

[17.4 varied by [PR994537](#) from 01Jan10]

Unless, to comply with superannuation legislation, the employer is required to make the superannuation contributions provided for in clause 17.2 to another superannuation fund that is chosen by the employee, the employer must make the superannuation contributions provided for in clause 17.2 and pay the amount authorised under clauses 17.3(a) or (b) to one of the following superannuation funds or its successor:

- (a) AustralianSuper;
- (b) Tasplan;
- (c) Statewide Superannuation Trust;

[17.4(d) varied by [PR546041](#) ppc 01Jan14]

- (d) any superannuation fund to which the employer was making superannuation contributions for the benefit of its employees before 12 September 2008, provided the superannuation fund is an eligible choice fund and is a fund that offers a MySuper product or is an exempt public sector scheme; or

[17.4(e) inserted by [PR546041](#) ppc 01Jan14]

- (e) a superannuation fund or scheme which the employee is a defined benefit member of.

Part 4—Hours of Work and Related Matters

18. Ordinary hours of work and rostering

18.1 For the purpose of the NES, ordinary hours of work under this award are 38 per week. An employee who by agreement with their employer is working a regular cycle (including shorter or longer hours) must not have ordinary hours of duty which exceed an average of 38 hours per week over the cycle.

18.2 Employers will compensate for:

- (a) time worked regularly in excess of ordinary hours of duty;
- (b) time worked on call-backs;
- (c) time spent standing by in readiness for a call-back;
- (d) time spent carrying out professional engineering duties or professional scientific/information technology duties outside of the ordinary hours of duty over the telephone or via remote access arrangements; or
- (e) time worked on afternoon, night or weekend shifts.

18.3 Compensation may include:

- (a) granting special additional leave;
- (b) granting special additional remuneration;
- (c) taking this factor into account in the fixation of annual remuneration; or
- (d) granting a special allowance or loading.

Provided that, where relevant, such compensation or remuneration will include consideration of the penalty rate or equivalent and the conditions as applicable from time to time to the majority of employees employed in a particular establishment in which the employee is employed.

18.4 The compensation and/or remuneration will be reviewed annually to ensure that it is set at an appropriate level having regard to the factors listed in this clause.

18.5 Transfers

Where an employee is transferred permanently from day work to shiftwork or from shiftwork to day work, such employee should receive at least one month's notice. However, the employer and the employee may agree on a lesser period of notice.

Part 5—Leave and Public Holidays

19. Annual leave

[Varied by [PR567245](#)]

19.1 Annual leave is provided for in the NES.

19.2 An employee must be paid a loading calculated at the rate of 17.5% of their base rate of pay, provided that:

- (a) In no case will there be an entitlement to an amount in excess of the ABS average weekly earnings for all males (Australia) for the preceding September quarter of the year preceding the year in which the date of the accrual of the annual leave falls.
- (b) Where an employee is in receipt of remuneration from their employer which is related to their annual leave loading and which is established as being of equivalent value to or greater value than the loading provided by this clause, no further entitlement will accrue. Where the benefit is of a lesser value than equivalent value then the employer must make up the benefit to that value.

19.3 Definition of shiftworker

[19.3 substituted by [PR567245](#) ppc 27 May 2015]

For the purpose of the additional week of annual leave provided for in the NES, a **shiftworker** is a seven day shiftworker who is regularly rostered to work on Sundays and public holidays.

19.4 Annual close-down

Where an employer closes down the enterprise, or a section or sections thereof, for the purposes of allowing annual leave to all or the majority of employees in the enterprise, section, or sections concerned, the same conditions which apply to the other employees of the enterprise, section or sections may also apply to employees covered by this award.

20. Personal/carer's leave and compassionate leave

Personal/carer's leave and compassionate leave are provided for in the NES.

21. Community service leave

Community service leave is provided for in the NES.

22. Public holidays

[Varied by [PR994537](#)]

22.1 Public holidays are provided for in the NES.

22.2 Substitution of public holidays by agreement at the enterprise

(a) Substitution of public holidays by majority agreement

[22.2(a) varied by [PR994537](#) from 01Jan10]

An employer and its employees may agree to substitute another day for any of the prescribed days in this clause. For this purpose, the consent of the majority of the affected employees will constitute agreement.

(b) Substitution of public holidays by individual agreement

An employer and individual employee may agree to the employee taking another day as the public holiday instead of the day which is being observed as the public holiday in the enterprise or relevant section or sections of it.

Schedule A—Transitional Provisions

[Varied by [PR991573](#), [PR503697](#)]

A.1 General

A.1.1 The provisions of this schedule deal with minimum obligations only.

A.1.2 The provisions of this schedule are to be applied:

- (a) when there is a difference, in money or percentage terms, between a provision in a relevant transitional minimum wage instrument (including the transitional default casual loading) or award-based transitional instrument on the one hand and an equivalent provision in this award on the other;
- (b) when a loading or penalty in a relevant transitional minimum wage instrument or award-based transitional instrument has no equivalent provision in this award;
- (c) when a loading or penalty in this award has no equivalent provision in a relevant transitional minimum wage instrument or award-based transitional instrument; or
- (d) when there is a loading or penalty in this award but there is no relevant transitional minimum wage instrument or award-based transitional instrument.

A.2 Minimum wages – existing minimum wage lower

A.2.1 The following transitional arrangements apply to an employer which, immediately prior to 1 January 2010:

- (a) was obliged,
- (b) but for the operation of an agreement-based transitional instrument or an enterprise agreement would have been obliged, or
- (c) if it had been an employer in the industry or of the occupations covered by this award would have been obliged

by a transitional minimum wage instrument and/or an award-based transitional instrument to pay a minimum wage lower than that in this award for any classification of employee.

A.2.2 In this clause minimum wage includes:

- (a) a minimum wage for a junior employee, an employee to whom training arrangements apply and an employee with a disability;
- (b) a piecework rate; and
- (c) any applicable industry allowance.

A.2.3 Prior to the first full pay period on or after 1 July 2010 the employer must pay no less than the minimum wage in the relevant transitional minimum wage instrument and/or award-based transitional instrument for the classification concerned.

A.2.4 The difference between the minimum wage for the classification in this award and the minimum wage in clause A.2.3 is referred to as the transitional amount.

A.2.5 From the following dates the employer must pay no less than the minimum wage for the classification in this award minus the specified proportion of the transitional amount:

First full pay period on or after

1 July 2010	80%
1 July 2011	60%
1 July 2012	40%
1 July 2013	20%

A.2.6 The employer must apply any increase in minimum wages in this award resulting from an annual wage review.

A.2.7 These provisions cease to operate from the beginning of the first full pay period on or after 1 July 2014.

A.3 Minimum wages – existing minimum wage higher

A.3.1 The following transitional arrangements apply to an employer which, immediately prior to 1 January 2010:

- (a) was obliged,
- (b) but for the operation of an agreement-based transitional instrument or an enterprise agreement would have been obliged, or
- (c) if it had been an employer in the industry or of the occupations covered by this award would have been obliged

by a transitional minimum wage instrument and/or an award-based transitional instrument to pay a minimum wage higher than that in this award for any classification of employee.

A.3.2 In this clause minimum wage includes:

- (a) a minimum wage for a junior employee, an employee to whom training arrangements apply and an employee with a disability;
- (b) a piecework rate; and
- (c) any applicable industry allowance.

A.3.3 Prior to the first full pay period on or after 1 July 2010 the employer must pay no less than the minimum wage in the relevant transitional minimum wage instrument and/or award-based transitional instrument for the classification concerned.

A.3.4 The difference between the minimum wage for the classification in this award and the minimum wage in clause A.3.3 is referred to as the transitional amount.

A.3.5 From the following dates the employer must pay no less than the minimum wage for the classification in this award plus the specified proportion of the transitional amount:

First full pay period on or after

1 July 2010	80%
1 July 2011	60%
1 July 2012	40%
1 July 2013	20%

A.3.6 The employer must apply any increase in minimum wages in this award resulting from an annual wage review. If the transitional amount is equal to or less than any increase in minimum wages resulting from the 2010 annual wage review the transitional amount is to be set off against the increase and the other provisions of this clause will not apply.

A.3.7 These provisions cease to operate from the beginning of the first full pay period on or after 1 July 2014.

A.4 Loadings and penalty rates

For the purposes of this schedule loading or penalty means a:

- casual or part-time loading;
- Saturday, Sunday, public holiday, evening or other penalty;
- shift allowance/penalty.

A.5 Loadings and penalty rates – existing loading or penalty rate lower

A.5.1 The following transitional arrangements apply to an employer which, immediately prior to 1 January 2010:

- (a) was obliged,
- (b) but for the operation of an agreement-based transitional instrument or an enterprise agreement would have been obliged, or
- (c) if it had been an employer in the industry or of the occupations covered by this award would have been obliged

by the terms of a transitional minimum wage instrument or an award-based transitional instrument to pay a particular loading or penalty at a lower rate than the equivalent loading or penalty in this award for any classification of employee.

A.5.2 Prior to the first full pay period on or after 1 July 2010 the employer must pay no less than the loading or penalty in the relevant transitional minimum wage instrument or award-based transitional instrument for the classification concerned.

A.5.3 The difference between the loading or penalty in this award and the rate in clause A.5.2 is referred to as the transitional percentage.

A.5.4 From the following dates the employer must pay no less than the loading or penalty in this award minus the specified proportion of the transitional percentage:

First full pay period on or after

1 July 2010	80%
1 July 2011	60%
1 July 2012	40%
1 July 2013	20%

A.5.5 These provisions cease to operate from the beginning of the first full pay period on or after 1 July 2014.

A.6 Loadings and penalty rates – existing loading or penalty rate higher

A.6.1 The following transitional arrangements apply to an employer which, immediately prior to 1 January 2010:

- (a) was obliged,
- (b) but for the operation of an agreement-based transitional instrument or an enterprise agreement would have been obliged, or
- (c) if it had been an employer in the industry or of the occupations covered by this award would have been obliged

by the terms of a transitional minimum wage instrument or an award-based transitional instrument to pay a particular loading or penalty at a higher rate than the equivalent loading or penalty in this award, or to pay a particular loading or penalty and there is no equivalent loading or penalty in this award, for any classification of employee.

A.6.2 Prior to the first full pay period on or after 1 July 2010 the employer must pay no less than the loading or penalty in the relevant transitional minimum wage instrument or award-based transitional instrument.

A.6.3 The difference between the loading or penalty in this award and the rate in clause A.6.2 is referred to as the transitional percentage. Where there is no equivalent loading or penalty in this award, the transitional percentage is the rate in A.6.2.

A.6.4 From the following dates the employer must pay no less than the loading or penalty in this award plus the specified proportion of the transitional percentage:

First full pay period on or after

1 July 2010	80%
1 July 2011	60%
1 July 2012	40%
1 July 2013	20%

A.6.5 These provisions cease to operate from the beginning of the first full pay period on or after 1 July 2014.

A.7 Loadings and penalty rates – no existing loading or penalty rate

A.7.1 The following transitional arrangements apply to an employer not covered by clause A.5 or A.6 in relation to a particular loading or penalty in this award.

A.7.2 Prior to the first full pay period on or after 1 July 2010 the employer need not pay the loading or penalty in this award.

A.7.3 From the following dates the employer must pay no less than the following percentage of the loading or penalty in this award:

First full pay period on or after

1 July 2010	20%
1 July 2011	40%
1 July 2012	60%
1 July 2013	80%

A.7.4 These provisions cease to operate from the beginning of the first full pay period on or after 1 July 2014.

A.8 Former Division 2B employers

[A.8 inserted by [PR503697](#) ppc 01Jan11]

A.8.1 This clause applies to an employer which, immediately prior to 1 January 2011, was covered by a Division 2B State award.

A.8.2 All of the terms of a Division 2B State award applying to a Division 2B employer are continued in effect until the end of the full pay period commencing before 1 February 2011.

A.8.3 Subject to this clause, from the first full pay period commencing on or after 1 February 2011 a Division 2B employer must pay no less than the minimum wages, loadings and penalty rates which it would be required to pay under this Schedule if it had been a national system employer immediately prior to 1 January 2010.

A.8.4 Despite clause A.8.3, where a minimum wage, loading or penalty rate in a Division 2B State award immediately prior to 1 February 2011 was lower than the corresponding minimum wage, loading or penalty rate in this award, nothing in this Schedule requires a Division 2B employer to pay more than the minimum wage, loading or penalty rate in this award.

A.8.5 Despite clause A.8.3, where a minimum wage, loading or penalty rate in a Division 2B State award immediately prior to 1 February 2011 was higher than the corresponding minimum wage, loading or penalty rate in this award, nothing in this Schedule requires a Division 2B employer to pay less than the minimum wage, loading or penalty rate in this award.

A.8.6 In relation to a Division 2B employer this Schedule commences to operate from the beginning of the first full pay period on or after 1 January 2011 and ceases to operate from the beginning of the first full pay period on or after 1 July 2014.

Schedule B—Classification Structure and Definitions

[Varied by [PR991335](#), [PR991573](#)]

For employment involving the performance of professional duties [except professional medical research duties](#), the following classification definitions apply:

B.1 Professional responsibility levels

B.1.1 Level 1—Graduate professional engineer, Professional scientist and Information technology employee

- (a) An employee at this level undertakes initial professional tasks of limited scope and complexity, such as minor phases of broader assignments, in office, plant, field or laboratory work.
- (b) Under supervision from higher level Professional engineers, Professional scientists or Professional information technology employees as to method of approach and requirements, the employee performs normal professional work and exercises individual judgment and initiative in the application of principles, techniques and methods.
- (c) In assisting more senior Professional engineers, Professional scientists or Professional information technology employees by carrying out tasks requiring accuracy and adherence to prescribed methods of professional engineering or professional scientific/information technology analysis, design or computation, the employee draws upon advanced techniques and methods learned during and after the undergraduate course.
- (d) Training, development and experience using a variety of standard procedures, enable the employee to develop increasing professional judgment and apply it progressively to more difficult tasks at Level 2.
- (e) Decisions are related to tasks performed, relying upon precedent or defined procedures for guidance. Recommendations are related to solution of problems in connection to the tasks performed.
- (f) Work is reviewed by higher level Professional engineers, Professional scientists or Professional information technology employees for validity, adequacy, methods and procedures. With professional development and experience, work receives less review, and the employee progressively exercises more individual judgment until the level of competence at Level 2 is achieved.
- (g) The employee may assign and check work of technical staff assigned to work on a common project.

B.1.2 Graduate professional—appointment and progression

(a) Pay Point 1.1

Means the pay point to which a graduate will be appointed where they possess and may be required to utilise a level of professional skill and knowledge based

on either the completion of an accredited three or four year tertiary professional technology based qualification in Australia or equivalent.

(b) Pay Point 1.2

Means the pay point to which a graduate will be appointed or will progress from Pay Point 1.1 having been assessed as being competent at Pay Point 1.1, where the graduate possesses and may be required to utilise a level of professional skill and knowledge based on:

(i) Training and experience

In addition to the experience, skill and knowledge requirements for Pay Point 1.1 not more than one further year of practical professional experience, with supervision as appropriate, and the undertaking of in-service training, subject to its provision by the employer.

(ii) Core competency standards

The development of core competency standards in the practice setting/s undertaken since being assessed as competent at Pay Point 1.1 measured against the prescribed performance criteria.

(c) Pay Point 1.3

Means the pay point to which a graduate will be appointed or will progress from Pay Point 1.2 having been assessed as being competent at this Pay Point, where the graduate possesses and may be required to utilise a level of professional skill and knowledge based on:

(i) Training and experience

In addition to the experience, skill and knowledge requirements for Pay Point 1.2, not more than one further year of practical professional experience, with supervision as appropriate, and the undertaking of in-service training, subject to its provision by the employer.

(ii) Core competency standards

In addition to the core competency standards developed at Pay Point 1.2, the further development of core competency standards in the practice setting/s undertaken since being assessed as competent at Pay Point 1.2 measured against the prescribed performance criteria.

(d) Pay Point 1.4

Means the pay point to which a graduate will be appointed or will progress from Pay Point 1.3 having been assessed as being competent at this Pay Point, where the graduate possesses and may be required to utilise a level of professional skill and knowledge based on:

(i) Training and experience

In addition to the experience, skill and knowledge requirements for Pay Point 1.3, not more than one further year of practical professional

experience, with supervision as appropriate, and the undertaking of in-service training, subject to its provision by the employer.

(ii) Core competency standards

In addition to the core competency standards developed at Pay Point 1.3, the further development of core competency standards in the practice setting/s undertaken since being assessed as competent at Pay Point 1.3 measured against the prescribed performance criteria.

B.1.3 Annual review

Subject to the requirements of each Pay Point, each graduate will progress on their annual anniversary date from one Pay Point to the next, having regard to the acquisition and utilisation of core competencies through experience in their practice setting/s over such period. Confirmation of the employee's progression to the next Pay Point will be provided by the employer in writing.

B.1.4 Deferral

Progression from one Pay Point to the next may be deferred or refused by the employer. Such deferral or refusal of progression will not be unreasonably or arbitrarily imposed by the employer. Any decision to defer or refuse progression to the next pay point will be confirmed in writing.

B.1.5 Appeal and review

An employee may appeal a deferral, provided that where any such appeal results in a revocation of the employer's decision, Pay Point progression will be deemed to operate and be payable from the employee's anniversary date for such progression. An appeal or review, for the purpose of this clause, will be undertaken and resolved in accordance with clause 10—Dispute resolution of this award.

B.1.6 Accelerated advancement

Progression from one Pay Point to the next may be advanced by the employer to occur prior to the annual anniversary date provided that any such advancement is referable to the requirements for each Pay Point.

B.1.7 Level 2—Experienced professional

Following development, the Experienced professional plans and conducts professional work without detailed supervision but with guidance on unusual features and is usually engaged on more responsible assignments requiring substantial professional experience.

B.1.8 Quality auditor

A candidate has satisfied the criteria and has demonstrated the ability to perform all or any part of a quality management system audit, solo, or as a member of a team to ISO 10011 Part 2, AS 3911 Part 2, NZS 10011 Part 2.

B.1.9 Level 3—Professional

- (a) An employee at this level performs duties requiring the application of mature professional knowledge. With scope for individual accomplishment and coordination of more difficult assignments, the employee deals with problems for which it is necessary to modify established guides and devise new approaches.
- (b) The employee may make some original contribution or apply new professional approaches and techniques to the design or development of equipment or products.
- (c) Recommendations may be reviewed for soundness of judgement but are usually regarded as technically accurate and feasible. The employee makes responsible decisions on matters assigned, including the establishment of professional standards and procedures. The employee consults, recommends and advises in specialty areas.
- (d) Work is carried out within broad guidelines requiring conformity with overall objectives, relative priorities and necessary cooperation with other units. Informed professional guidance may be available.
- (e) The employee outlines and assigns work, reviews it for technical accuracy and adequacy, and may plan, direct, coordinate and supervise the work of other professional and technical staff.

B.1.10 Senior (lead) auditor

A candidate has satisfied the criteria and has demonstrated the ability to manage an audit team and co-ordinate all aspects of a complete quality management system audit to ISO 10011 Part 2, AS 3911 Part 2, NZS 10011 Part 2.

B.1.11 Level 4—Professional

- (a) An employee at this level performs professional work involving considerable independence in approach, demanding a considerable degree of originality, ingenuity and judgement, and knowledge of more than one field of, or expertise (for example, acts as their organisation's technical reference authority) in a particular field of professional engineering, professional scientific/information technology field or professional information technology field.
- (b) An employee at this level:
 - (i) initiates or participates in short or long range planning and makes independent decisions on professional engineering or professional scientific/information technology policies and procedures within an overall program;
 - (ii) gives technical advice to management and operating departments;
 - (iii) may take detailed technical responsibility for product development and provision of specialised professional engineering or professional scientific/information technology systems, facilities and functions;
 - (iv) coordinates work programs; and

- (v) directs or advises on the use of equipment and materials.
- (c) An employee at this level makes responsible decisions not usually subject to technical review, decides courses of action necessary to expedite the successful accomplishment of assigned projects, and may make recommendations involving large sums or long range objectives.
- (d) Duties are assigned only in terms of broad objectives, and are reviewed for policy, soundness of approach, accomplishment and general effectiveness.
- (e) The employee supervises a group or groups including professionals and other staff, or exercises authority and technical control over a group of professional staff. In both instances, the employee is engaged in complex professional engineering or professional scientific/information technology applications.

Schedule C—Medical Research Institutes

For employment involving the performance of professional medical research duties, the following classification definitions apply:

C.1 Professional responsibility levels

C.1.1 Level 1—Graduate professional medical research employee

- (a) The employee undertakes initial professional medical research duties of limited scope and complexity that support and contribute to the research efforts of the research unit.
- (b) Under supervision from higher level Professional medical research employees as to method of approach and requirements, the employee performs normal professional medical research duties and exercises individual judgment and initiative in the application of principles, techniques and methods.
- (c) In assisting more senior Professional medical research employees by carrying out tasks requiring accuracy and adherence to established research methods, the employee draws upon advanced techniques and methods learned during and after the undergraduate course.
- (d) Training, development and experience using a variety of standard procedures, enable the employee to develop increasing professional judgment and apply it progressively to more difficult tasks at Level 2.
- (e) Decisions are related to tasks performed, relying upon precedent or defined procedures for guidance.
- (f) Work is reviewed by higher level Professional medical research employees for validity, adequacy, methods and procedures. With professional development and experience, work receives less review, and the employee progressively exercises more individual judgment until the level of competence at Level 2 is achieved.
- (g) The employee may assign and check work of technical staff assigned to work on a common project.

C.1.2 Graduate professional—appointment and progression

(a) Pay Point 1.1

Means the pay point to which a graduate will be appointed where they possess and may be required to utilise a level of professional skill and knowledge based on either the completion of an accredited three or four year tertiary qualification in Australia or equivalent.

(b) Pay Point 1.2

Means the pay point to which a graduate will be appointed or will progress from Pay Point 1.1 having been assessed as being competent at Pay Point 1.1, where the graduate possesses and may be required to utilise a level of professional skill and knowledge based on:

(i) Training and experience

In addition to the experience, skill and knowledge requirements for Pay Point 1.1 not more than one further year of practical professional experience, with supervision as appropriate, and the undertaking of in-service training, subject to its provision by the employer.

(ii) Core competency standards

The development of core competency standards in the practice setting/s undertaken since being assessed as competent at Pay Point 1.1 measured against the prescribed performance criteria.

(c) Pay Point 1.3

Means the pay point to which a graduate will be appointed or will progress from Pay Point 1.2 having been assessed as being competent at this Pay Point, where the graduate possesses and may be required to utilise a level of professional skill and knowledge based on:

(i) Training and experience

In addition to the experience, skill and knowledge requirements for Pay Point 1.2, not more than one further year of practical professional experience, with supervision as appropriate, and the undertaking of in-service training, subject to its provision by the employer.

(ii) Core competency standards

In addition to the core competency standards developed at Pay Point 1.2, the further development of core competency standards in the practice setting/s undertaken since being assessed as competent at Pay Point 1.2 measured against the prescribed performance criteria.

(d) Pay Point 1.4

Means the pay point to which a graduate will be appointed or will progress from Pay Point 1.3 having been assessed as being competent at this Pay Point, where the graduate possesses and may be required to utilise a level of professional skill and knowledge based on:

(i) Training and experience

In addition to the experience, skill and knowledge requirements for Pay Point 1.3, not more than one further year of practical professional experience, with supervision as appropriate, and the undertaking of in-service training, subject to its provision by the employer.

(ii) Core competency standards

In addition to the core competency standards developed at Pay Point 1.3, the further development of core competency standards in the practice setting/s undertaken since being assessed as competent at Pay Point 1.3 measured against the prescribed performance criteria.

C.1.3 Annual review

Subject to the requirements of each Pay Point, each graduate will progress on their annual anniversary date from one Pay Point to the next, having regard to the acquisition and utilisation of core competencies through experience in their practice setting/s over such period. Confirmation of the employee's progression to the next Pay Point will be provided by the employer in writing.

C.1.4 Deferral

Progression from one Pay Point to the next may be deferred or refused by the employer. Such deferral or refusal of progression will not be unreasonably or arbitrarily imposed by the employer. Any decision to defer or refuse progression to the next pay point will be confirmed in writing.

C.1.5 Appeal and review

An employee may appeal a deferral, provided that where any such appeal results in a revocation of the employer's decision, Pay Point progression will be deemed to operate and be payable from the employee's anniversary date for such progression. An appeal or review, for the purpose of this clause, will be undertaken and resolved in accordance with clause 10—Dispute resolution of this award.

C.1.6 Accelerated advancement

Progression from one Pay Point to the next may be advanced by the employer to occur prior to the annual anniversary date provided that any such advancement is referable to the requirements for each Pay Point.

C.1.7 Level 2—Experienced professional medical research employee

- (a) The Experienced professional plans and conducts professional medical research duties without detailed supervision but with guidance and is usually engaged in more responsible assignments requiring substantial professional experience.
- (b) An employee at this level:

 - (i) contributes to the research outputs of a research group and/or their impact on health and community outcomes;
 - (ii) normally has a greater degree of autonomy and responsibility, including the conduct of components of independent research projects within an overall program, development of more advanced technical skills, and the guidance and support of students or more junior staff with respect of methodology and procedure;
 - (iii) may present at conferences and seminars, and provide input into the preparation of submissions to external funding bodies and other agencies; and
 - (iv) normally undertakes administrative functions in relation to their area of research.

C.1.8 Level 3—Experienced medical research employee

- (a) An employee at this level performs duties requiring the application of mature professional knowledge, with scope for individual accomplishment and the oversight of research projects. They should either be receiving or working towards obtaining independent research funding.
- (b) An employee at this level is expected to:
 - (i) contribute to the research direction of a research team, including, where appropriate, overseeing a research team within a research group and within broad guidelines requiring conformity with overall objectives and relative priorities;
 - (ii) make independent, original contributions to their area of research and/or its impact on health and community outcomes;
 - (iii) produce research that results in publications or influences health guidelines, health policy or other health advancements, either independently or through collaborations with other researchers, health professionals, policy officers or other relevant professionals;
 - (iv) present at conferences and seminars, and prepare submissions to external funding bodies and other agencies; and
 - (v) supervise support staff and other technical staff and guide the research efforts of more junior Professional medical research employees and Honours or Research Higher Degree students.

C.1.9 Level 4—Experienced medical research employee

- (a) An employee at this level is expected to have made a considerable original contribution to their area of research and be acknowledged nationally in their area of expertise. They will generally receive independent research funding.
- (b) An employee at this level is expected to:
 - (i) play a major role in the research direction of a research group, including, where appropriate, leading a research group or managing research projects;
 - (ii) hold a considerable record of independent, original contributions to an area of research and/or its impact on health and community outcomes;
 - (iii) produce research that results in publications or influences health guidelines, health policy or other health advancements, either independently or through collaborations with other researchers, health professionals, policy officers or other relevant professionals at a national or international level;
 - (iv) present at national and international conferences and seminars;
 - (v) prepare submissions to external funding bodies and other agencies, and play a role in the financial management of funding; and

(vi) supervise and advise other research staff, guide the research efforts of more junior Professional medical research employees, and supervise Honours or Research Higher Degree projects and students.

C.1.10 Level 5—Experienced medical research employee

(a) An employee at this level is expected to have achieved recognition as an authority nationally or internationally in their area of research expertise, and play a leading role within the research community. They will oversee a program of research and receive independent research funding.

(b) An employee at this level is expected to:

(i) lead a research team/unit within their organisation, including conceiving programs and problems to be investigated and determining research strategy and direction;

(ii) make responsible decisions on all matters, including ways of attaining research program objectives and financial management of research funding, subject only to overall policy and financial controls;

(iii) hold a substantial/major record of independent, original contributions to an area of research and/or its impact on health and community outcomes;

(iv) oversee research that results in publications or influences health guidelines, health policy or other health advancements, either independently or through collaborations with other researchers, health professionals, policy officers or other relevant professionals at a national or international level;

(v) present at national and international conferences and seminars;

(e)(vi) support and guide the research efforts of Professional medical research employees in the research team/unit, direct staff, and supervise Research Higher Degree projects and students.

FAIR WORK COMMISSION

Fair Work Commission – 4 yearly review of modern awards

Matter number: AM2014/281

Professional Employees Award 2010

Application to vary the Award as part of the 4-yearly review

I, Christopher Giles Walton of _____, state as follows:

1. I am employed by the Association of Professional Engineers, Scientists and Managers, Australia (“APESMA”) as Chief Executive Officer. I have held this position since October 2008. Prior to that I have held a number of industrial positions including Assistant Secretary of the ACTU (Australian Council of Unions). I have been a full-time union official for over 30 years.
2. The Association is an amalgam of a number of employee organisations representing professional employees. One of these organisations was the Association of Professional Scientists of Australia (“APSA”). APSA which amalgamated with the then Association of Professional Engineers, Australia (“APEA”) in 1991 was initially formed in 1960, obtained registration in 1962 and was successful in achieving the first award covering non-government sector Professional Scientists in 1964.
3. Membership eligibility is set out in Federal Rule 3.2 (attached as Annexure A) and is primarily based on the applicant possessing qualifications which would make them eligible for membership of a number of specified professional institutes or alternatively the holder of a Bachelor of Science. Membership eligibility for persons employed in the Australian public sector is limited to specified disciplines (Federal Rule 3.2.3) while Professional Scientists employed by the CSIRO are excluded from membership altogether. Predominantly the Professional Scientists membership of APESMA is located in the non-government sector. Employees who are employed as Professional Scientists in Medical Research Institutes are eligible for membership of APESMA. Non-scientist researchers are eligible for membership under Rule 3.13.
4. APESMA has approximately 24,000 members, the vast bulk of which are scientists and engineers covered by the Professional Employees Award (“PEA”). The scientist members have qualifications in many science disciplines including natural and physical science; biological

sciences; chemical sciences; earth sciences; physics and environmental science. Our science members work across many industries – often alongside fellow engineering members - with significant numbers of members in defence, manufacturing, biotechnology, food, mining, infrastructure and medical industries.

5. APESMA’s governance structure is primarily based on the concept of professional identity (refer Annexure B). New members are allocated to their appropriate Division and in the case of Professional Scientists, the Professional Scientists Division.
6. The Professional Scientists Division comprises members who fulfil a broad range of roles across a diverse range of industries. A listing of employers with Professionals Australia scientist members shows a total of 445 employers in the non-government sector and 207 employers operating in the non-private sector. This demonstrates how broadly our Professional Scientist members are spread.
7. The diversity of the Association’s coverage of Professional Scientists is also reflected in the Professional Scientists Remuneration Survey (refer Annexure C – Appendices 14.5 and 14.6, page 59 – industry and branch of science). This survey is jointly conducted by the Association and the peak industry body for scientific societies Science & Technology Australia (“STA”). The survey obtains data relevant to the remuneration of Professional Scientists based on a range of variables including sector of employment, responsibility level, years of experience, branch of science, job function, state/territory, highest science qualification, gender and industry. The survey is conducted annually and the Professional Scientists Remuneration Survey Report is published by the Association.
8. As mentioned above the Professional Scientists Remuneration Survey includes data based on an employee’s job function. In this regard the survey (refer Table 5.1, page 16) shows average base salaries and total packages for the various categories. Those categories relevant to coverage under the PEA include as follows:
 - a. Exploration (including Mining);
 - b. Quality control and production;
 - c. Management;
 - d. Analysis and testing;
 - e. Research and development; and
 - f. Quality assurance.

9. The main modern award for Professional Scientists employed in the non-government sector is the Professional Employees Award (“PEA”). This award as outlined in Clause 4 – Coverage covers employers “throughout Australia with respect to their employees performing professional engineering and professional scientific duties...” (Clause 4.1). Therefore this award is the occupational award for professional scientists and the coverage is widespread. The exemptions predominately apply to scientists in the government sector.
10. In the application of the award the key determinant is the relevant definitions of professional duties which are then read in conjunction with the classification structures set out in Schedule B. For Professional Scientists “*professional scientific duties*” means “*duties carried out in any particular employment, the adequate discharge of any portion of which duties requires academic qualifications of the employee as specified in the academic schedule...*”. The academic schedule lists a number of qualifications acceptable to designated professional institutes and the “catch-all” provision of “*a degree in science from an Australian, New Zealand or United Kingdom university or from an Australian tertiary educational institution*”. It should be noted that the framework of this definition apart from the periodic addition of individual qualifications has survived intact since the making of the original Professional Scientists Award in 1964. Further as mentioned above the classification structures are outlined in Schedule B of the PEA and are based on responsibility levels and not job titles. Accordingly a wide diversity of professional scientific roles are comprehended by the award.
11. The widespread coverage of professional scientists in the Professional Employees Award can be seen in part by our widespread membership, through the previous respondent list to the award and through ABS data.
12. As mentioned above the initial award covering Professional Scientists employed in the non-government sector was the Professional Scientists Award 1964. Along with awards covering Professional Engineers, IT Professionals, Telecommunication Professionals and Quality Auditors the successors to this award were incorporated into PEA. It should be noted that there were over 1,800 employers listed as respondents to all or part of the 2006 consolidation of the Professional Scientists Award [AP7607CRN] (refer Annexure D). This figure does not include the membership of organisations such as the Victorian Employers Chamber of Commerce and Industry and the Australian Chamber of Manufactures whose members were also bound by the Award. The industries covered ranged from mining to soft drink, beer and wine production,

electronics, food production, pharmaceuticals, concreting, oil refineries, dye works to water science laboratories. The residency list includes iconic Australian operations including Olex Cables, Boral, Meadow-Lea, Campbells Soups, Western Mining, Pfizer, Rentokil, McCain Foods, Lindeman Wines, ICI, Joe White Maltings, ICI, Comalco, Sanitarium Health Foods, Penfolds, Uncle Tobys, Berrie Fruit Juice Company, Arnotts, Bayer, Caltex, Cottees, Coca-Cola, Innox, Blue Circle Cement, British Paints, Esso, George Weston, Johnson and Johnson and Philips. In addition there are a number of MRIs bound by the Professional Scientists Award namely the Baker Medical Research Institute, Bionic Ear and Hearing Research Institute and the Reproductive Medicine Research Institute (Annexure I). The coverage of the Award is broad, the operating environments are all very different but each organisation named in the residency list employed or potentially employed Professional Scientists to undertake scientific duties.

13. The Australian Bureau of Statistics also provides relevant information on the numbers of natural and physical science professionals across different sectors of the economy. Attached as Annexure H is information collected by the ABS during the 2011 Census. The largest employer of natural and physical science professionals is the professional, scientific and technical services sector, comprising a range of businesses including engineering, consulting, scientific research services, veterinary services and other related services (businesses in this sector may provide services to businesses in other sectors).
14. ABS data collected during the 2011 Census also shows that the vast majority of qualified scientists are employed outside the higher education sector (refer to Annexure H). At the time of the 2011 Census, 74,251 (91%) science professionals identified themselves as being employed outside higher education. A majority of these scientists will be covered by the PEA. Conversely, only 7,284 (9%) were employed in higher education. Although there are some scientists undertaking scientific duties in higher education, the vast bulk of non-government scientists are covered by the PEA.
15. In its representation of professional scientists, APESMA has three key objectives:
 - a. To provide a strong voice for professional scientists including for example the creation of a sustainable medical research workforce;
 - b. To play a leading role in encouraging dialogue between industry and government including advocating for investment in science through improved funding; and

- c. To promote the public understanding of science and the key role Professional Scientists play in ensuring Australia's future including, for example, influencing public policy and resource allocation decisions and promoting the value of science to decision makers and the wider community.
16. APESMA has been actively involved in addressing the issues around the funding of science for many years. We are an active member of the Research Alliance which includes organisations such as the Association of Australian Medical Research Institutes (AAMRI); Science and Technology Australia; The Group of Eight; the Australian Academy of Science; the Australian Academy of Technological Sciences and Engineering; Cooperative Research Centres Association; and the Australian Society for Medical Research and Research Australia.
17. It is our strategy that finding solutions to the systemic challenges faced by professional scientists is the best way to ultimately help them achieve respect, recognition and reward so that they can deliver good science in the interests of the industries in which they work and ultimately Australia.
18. In this regard we have produced two keynote publications: *Still the Clever Country?* and *Realising Innovation through Science and R&D* (attached as Annexures E and F).
19. Our work at the policy and structural levels includes:
 - (1) making submissions to the Innovation inquiry, the CRC Program Review, the Science and Technology for National Security Review, the Productivity Commission Inquiry into Workplace Relations and the Government's draft Vision for a Science Nation;
 - (2) supporting Science and Technology Australia's advocacy against reduced funding for the Australian Research Council, CSIRO, DSTO, the CRC Program, ANSTO and the Australian Institute of Marine Science;
 - (3) working with Science and Technology Australia and the Research Alliance to advocate for operational funding for the National Collaborative Research Infrastructure Strategy; and
 - (4) advocating to fully capitalise the \$20 billion Medical Research Future Fund.
20. Our advocacy has included direct lobbying and media interviews.
21. The Association recently surveyed the scientists who are medical researchers employed by the various medical research institutes in order to better understand not only the problems at the

structural and systemic level, such as funding, but also their career experiences, the barriers they saw to their research outcomes and the issues and problems they faced in their day-to-day activities. In February 2016 the findings were published in a report titled “Best and Brightest: Advancing Medical Research” which is attached as Annexure G.

22. The survey of the MRI sector was conducted throughout October/November 2015.
23. Overall the survey found that scientists who are medical researchers were attracted to the MRI sector because of its focus on linking health and medical research to improved health outcomes and in this regard respondents ranked job satisfaction as their primary career motivation with only 16.2 % indicating that they were dissatisfied or very dissatisfied in their current job. However scientists who are medical researchers were acutely aware of the systemic problems caused by a lack of funding and short term funding.
24. 74.4 per cent of respondents believed that MRIs should remain independent, working collaboratively with universities and hospitals rather than being part of a university/hospital organisational structure. Only 3% disagreed.
25. In the identification of the major issues faced by the MRI sector the key findings of the report covered a range of areas but highlighted the need for a holistic approach to tackling the issues faced by the industry and the scientists who work in it. These issues included:
 - d. A need for a long term strategy – 93.1% said that having a long-term strategy for research infrastructure would make the sector more successful;
 - e. Workforce sustainability – For instance 95% of respondents agreed or strongly agreed that a funding system that has a success rate of less than 20% leads to a significant proportion of the research workforce leaving their field;
 - f. Funding – 93.3% said that the current funding system results in the sector effectively wasting significant investment in the scientists workforce skills and development;
 - g. Job Security – 92.4 % agreed or strongly agreed that the precarious and contingent nature of funding impacted their job security;
 - h. Skills Development – 77.2% of respondents agreed or strongly agreed that providing professional development in technology/transfer commercialisation would help improve commercialisation opportunities;

- i. Work/life balance – Only 53.7 % said they enjoyed a good work/life balance; and
 - j. Disadvantage for women – 76.5% said an emphasis on recent publications acts as a barrier to advancement when taking a career break for family responsibilities.

- 26. The survey responses revealed that variable employment arrangements were in place across the sector. There was a lack of clarity around the system used to classify positions. In this regard the creation of a new medical research employee stream with more “scientific research-orientated” classification definitions that cover all medical research professionals would be of benefit across the sector and would underpin enterprise bargaining.

- 27. The report is being circulated and discussed with employees in MRIs.

- 28. I presented the survey to 14 HR managers from MRIs on 26 February 2016 in Brisbane. Following that meeting we have consulted with AAMRI and will convene working groups of members to progress the following issues:

at the structural and policy levels

- a. workforce development issues including attrition from the sector, attracting the next generation of researchers to build capacity, better aligning research with science and research priorities and the need for strategically-driven remuneration, development and reward systems;
- b. supporting the sector in lobbying for full capitalisation of the \$20 billion Medical Research Future Fund and assist in achieving more equitable funding of indirect costs.

and at the workplace level

- a. career advancement and reward systems – building remuneration systems and career paths that enhance researcher engagement, contribute to job satisfaction, encourage team effort, create career paths, acknowledge the need for work/life balance, provide development opportunities, incentivise commercialisation, collaboration and external engagement and help ensure a committed, flexible and agile workforce;
- b. job security – mindful of the nexus between the nature of funding and methods of engagement, determining how it might be possible to address the issue of job security for staff;
- c. skills development
 - investing in the leadership and management skills of staff, and

- recognising the importance of business and commercialisation-relevant skills to support research, hospital and university partnerships, collaboration and the translation of research to impact; and

d. gender equity – addressing the practices/systemic barriers which operate to disadvantage women in the sector – recruitment practices, promotion/advancement practices, how MRIs accommodate carer responsibilities and career breaks, organisational culture including long working hours and measures of success which disadvantage those with carer responsibilities.

29. APESMA will be bargaining on behalf of members in Baker IDI. In addition we have sought to initiate bargaining with a number of other MRI's.
30. Finally the rationale for the claim for a separate stream for Medical Research Institutes to be included as a new Clause 3.7 and Schedule C is contained in the joint Outline of Submission presented by AAMRI and APESMA. There is however one aspect of this which should be highlighted. This is the definition of a Graduate medical research employee which “means an employee who holds a university degree (three, four or five year course)”. This expanded definition, which is broader than that for a Graduate Professional Scientists, is in part a reflection of the practical reality that medical researchers employed by Medical Research Institutes generally possess higher qualifications. This is illustrated for example by the “Best and Brightest: Advancing Medical Research” Survey Report where at Figure 10 (page 26) it is shown that 75.4% of respondents have superior qualifications to that of a Bachelor Degree (inc. Hons).

Signed:



Dated: 11.3.2016

FAIR WORK COMMISSION

Fair Work Commission – 4 yearly review of modern awards

Matter number: AM2014/281

Professional Employees Award 2010

Application to vary the Award as part of the 4-yearly review

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**IN THE FAIR WORK COMMISSION
4 YEARLY REVIEW OF MODERN AWARDS
AWARD STAGE – GROUPS 3 AND 4**

Matter Nos: AM2014/281 (*Professional Employees Award 2010*)
AM2015/6 (Education Group)

Applicants: The Association of Australian Medical Research Institutes (**AAMRI**) and the Association for Professional Engineers, Scientists and Managers, Australia (**APESMA**)

WITNESS STATEMENT OF PROFESSOR DOUGLAS HILTON

I, **PROFESSOR DOUGLAS HILTON** of _____, **STATE** as follows:

1. I make this statement on my own behalf and, where relevant, in my capacity as:
 - (a) Director of the Walter and Eliza Hall Institute of Medical Research (**WEHI**); and
 - (b) President of the Association of Australian Medical Research Institutes (**AAMRI**).
2. I am authorised to make this statement on behalf of WEHI and AAMRI.
3. I make this statement from my own knowledge unless I indicate otherwise. Where I have received information from a third party, I believe that information to be true unless I state otherwise.

My background

4. I am a protein chemist and molecular biologist by training. In this regard, I hold a Bachelor of Science from Monash University, a Bachelor of Science (Honours) from the University of Melbourne, and a PhD from the University of Melbourne.
5. I have been the Director of WEHI since 2009. Prior to holding this position, I held the following positions:

1992 - 1993	Postdoctoral Fellow, Massachusetts Institute of Technology (MIT)
1993 - 1996	Senior Postdoctoral Fellow / Junior Laboratory Head, WEHI
1994-1996	Laboratory Head, AMRAD Corporation Limited (AMRAD),

1996 - 2001	Laboratory Head, WEHI
1996 - 2001	Director, Cooperative Research Centre for Cellular Growth Factors
2002 - 2008	Laboratory Head and Division Head, WEHI

6. I am a Fellow of the Australian Academy of Science, the Australian Academy of Technological Sciences and Engineering, and the Australian Academy of Health and Medical Sciences.
7. In 1999, I co-founded the biotechnology company MuriGen Therapeutics Pty Ltd (ACN 126 533 695) (**MuriGen**), and was Co-Chairman of the Scientific Advisory Board of MuriGen. MuriGen utilised mouse genetics to assess gene function in the biotechnology sector and carried out contract work for the New Zealand dairy company ViaLactia, as well as conducting its own biopharmaceutical research. MuriGen licensed intellectual property to CSL, which is now developing new medicines for inflammatory disease. In my role at MuriGen, I oversaw much of this research.
8. My full curriculum vitae is appended to this Statement as **Appendix 1**.
9. In my current and former roles, I have had extensive experience working with medical research institutes (**MRIs**), hospitals, universities and private industry.

WEHI background

10. WEHI was founded in 1915 by the Walter and Eliza Hall Trust, which allocated an annual sum of £2,500 to the establishment and ongoing work of an MRI.
11. WEHI is an independent MRI conducting medical research into the prevention, diagnosis and treatment of cancers, immune disorders and infectious diseases.
12. WEHI is a company limited by guarantee and a Health Promotion Charity registered with the Australian Charities and Not-for-profits Commission (**ACNC**).
13. WEHI is overseen by an independent board of 12-18 directors, including two appointed by the Royal Melbourne Hospital and two appointed by the University of Melbourne. Membership of WEHI is at the invitation of the board and extended to individuals who have made a contribution to the MRI.
14. WEHI employs 463 medical researchers, as well as 303 support staff from various occupations and backgrounds, including scientific coordinators, administrative officers, business development staff, accountants and human resources specialists.

15. Employees at WEHI are employed pursuant to common law contracts of employment that are underpinned by modern awards. Medical researcher salaries may be benchmarked against market rates in order to attract staff.
16. WEHI has had a long collaborative partnership with the Royal Melbourne Hospital. WEHI's first laboratories were housed within the premises of the Royal Melbourne Hospital (then Melbourne Hospital). A number of WEHI's clinician scientists also look after patients at Royal Melbourne Hospital, and many WEHI medical researchers are focussed on translating WEHI's research discoveries into treatments that will benefit patients.
17. For administrative purposes, WEHI is nominally a department of the University of Melbourne, which allows for WEHI medical researchers to supervise Honours and PhD students enrolled at the University of Melbourne. WEHI is not treated like other departments of the University of Melbourne, and the university has no control over the budget, funding, research or strategic direction of WEHI.
18. WEHI has established multiple start-up companies to facilitate research translation. These commercial biotechnology research companies include:
 - (a) Genera Biosystems Limited (which is publically listed on the Australian Stock Exchange);
 - (b) ImmusanT;
 - (c) Catalyst Therapeutics Pty Ltd; and
 - (d) MuriGen.

Background of AAMRI

19. AAMRI was founded in 1993 in order to advocate on behalf of Australian MRIs. AAMRI's role is to represent organisations with a central focus on health and medical research through advocacy, information provision, relationship building and member services.
20. AAMRI has been an effective advocacy body for MRIs aiming to improve the policy/regulatory and funding environment for MRIs and Australian medical research more broadly. It has also facilitated MRIs sharing business practices and allowed for greater professional collaboration between MRIs.
21. There are currently 46 members of AAMRI. The majority of AAMRI members are independent MRIs, meaning that they are independent legal entities, and have independent

Boards governing their operations. I understand that there are 9 MRIs which are not independent legal entities, including:

- (a) 5 MRIs which form part of a university (Australian Institute of Tropical Health and Medicine; Australian Regenerative Medicine Institute; Menzies Institute for Medical Research; John Curtin School of Medical Research; Robinson Research Institute);
- (b) 2 MRIs which form part of a hospital (Kolling Institute of Medical Research; the Research Division of the Peter MacCallum Cancer Centre);
- (c) Hanson Institute, which forms part of SA Pathology, a government agency; and
- (d) Centre for Cancer Biology, a joint venture between SA Pathology and the University of South Australia.

22. In addition, one independent MRI, QIMR Berghofer Medical Research Institute, is a statutory agency of the Queensland Government.

Diversity of independent MRIs

23. The 37 independent MRIs which are members of AAMRI have varying levels of affiliation with one or more hospitals, universities, government and commercial organisations in the private sector. Like WEHI, several MRIs have controlled entities that are profit making businesses. The relationships between independent MRIs, hospitals, universities, government agencies and commercial organisations are important for sharing knowledge and business practices, research collaboration, research translation, and access to resources.

24. The affiliations of independent MRIs with hospitals allow those MRIs to better access patients and patient data, and to be closer to clinical practice. It assists MRIs to embed medical research in health services and provides hospital clinicians with world-class research environments.

25. In order to benefit from the contributions of post-graduate research students enrolled at an affiliated university or universities, independent MRIs adopt a variety of arrangements. These include having MRI research staff co-supervise students with research staff from the relevant universities, having MRI staff appointed to honorary academic positions so that they can supervise post-graduate students, or by independent MRIs being nominal departments of universities, as in the case for WEHI. Many hospitals and other organisations from the government, not-for-profit and industry sectors that undertake research have a similar variety of arrangements.

26. Independent MRIs vary in the extent to which they share employees with affiliated organisations. Some medical researchers employed by independent MRIs are also employed by hospitals, universities, the industry sector or a combination of these. These affiliations can sometimes involve medical researchers being seconded from these organisations; for example a significant proportion of employees at the Institute for Breathing and Sleep are employed by Austin Health.
27. Independent MRIs have diverse organisational structures and operational arrangements, such as their level of health service provision, as well as their involvement in public health activities and health policy and guideline development. These activities are linked to their research activities (e.g. translating research into new health policies or guidelines or public health activities; the involvement of patients in clinical research). For instance, a significant proportion of the Queensland Eye Institute's operations involve providing clinical services to patients. The Bionics Institute, on the other hand, is closely aligned with industry partners and focussed on developing commercial pathways for its neurobionics research.
28. In spite of their diverse affiliations, employment arrangements and operations, independent MRIs have in common the distinct purpose of improving the diagnosis, prevention or treatment of disease.
29. Independent MRIs are able to avoid the complicated reporting structures and bureaucracies that may affect the organisations with which they are affiliated. While MRIs have entered into many different administrative arrangements with their affiliates, I understand that the majority do so to access further resources, funding and post-graduate research students while retaining as much independence as possible.

Funding and tax treatment of independent MRIs

30. The National Health and Medical Research Council (**NHMRC**) is the Federal Government body which administers the Medical Research Endowment Account, and is the primary government funding body for health and medical research in Australia. I am a member of the Expert Advisory Group appointed by the NHMRC to review its grant programs.
31. The primary source of research funding for the majority of independent MRIs is competitive grants administered by the NHMRC. These competitive grants are 1-5 years in duration. MRIs have varying levels of success in obtaining these grants. Indeed, in 2015, only about 14% of Project Grant applications to the NHMRC were successful. Independent MRIs also receive funding from other competitive grant sources, including national, state or international charitable and health specific councils, trusts and foundations (eg Bill and Melinda Gates Foundation, Human Frontier Science Program, Cancer Council, Heart

Foundation, Juvenile Diabetes Research Foundation, Leukaemia Foundation, Cancer Council of Australia, state Cancer Councils, Ian Potter Foundation, Arthritis Australia, Alzheimer's Australia, Harold Mitchell Foundation, JO & JR Wicking Trust).

32. The fixed term nature of grant funding means that many independent MRIs (including WEHI) need to engage some staff on a fixed term arrangement. This also means that sourcing grant funding is a significant proportion of the work of MRI research employees as they increase in seniority.
33. To supplement grant income, many independent MRIs also receive philanthropic funding as Deductible Gift Recipients, as well as raising fundraising income. By its nature this is a variable source of income.
34. Independent MRIs are registered as either Health Promotion Charities or Public Benevolent Institutes with the ACNC. This entitles them to different charitable tax benefits from those granted to, for example, universities. These benefits affect, among other things, staff remuneration in the form of fringe benefits tax exemptions.
35. Some MRIs, including WEHI, have industry partnerships or commercial ventures which also provide a source of funding.
36. The funding sources for independent MRIs are clearly distinct from the block funding that hospitals and universities receive from the government, which underpins their ongoing sustainability.

Similarity of independent MRIs to commercial research organisations

37. From 1996 to 2001, while a Laboratory Head at WEHI, I also worked as Director of the Cooperative Research Centre (**CRC**) for Cellular Growth Factors. It was set up as part of the Cooperative Research Centres Program and involved collaboration between WEHI, the Ludwig Institute for Cancer Research, the Biomolecular Research Institute, the Commonwealth Scientific and Industrial Research Organisation (**CSIRO**) and AMRAD, a biotechnology research and development company.
38. AMRAD (which was renamed Zenyth Therapeutics) was later sold to CSL Limited, a public company which develops, manufactures and markets biologically-based health care products. Through my position as Director of, and a medical researcher employed by, WEHI, I continue to have involvement with CSL.
39. Based on my experience working concurrently at both WEHI and the CRC, as well as subsequent involvement in the several biotechnology companies that have been

established by WEHI, I consider that these companies operate similarly to independent MRIs. Their primary focus is on research and its translation, and a key indicator of success in that regard is the impact of research discoveries on health outcomes. Independent MRIs have obligations to their donors and directors to impact health advances.

40. There is a common focus on outcomes, including protecting and patenting discoveries. This results in shared practices across some independent MRIs and biotechnology companies, including:
- (a) requiring staff to sign laboratory books daily in order to protect the organisation's right to patent as first to invent;
 - (b) financial incentives to patent, which might take the form of bonuses at biotechnology companies, and at WEHI takes the form of a rewards scheme where profits from patents are distributed to staff and inventors.

Medical researchers at independent MRIs

41. The work performed by medical researchers at different independent MRIs will vary depending on the extent of each independent MRI's clinical and/or commercial operations and affiliations. This affects how similar their work will be to that performed by medical researchers at hospitals, universities, and industry.
42. I consider that the work performed by medical researchers at WEHI, and the environment in which they perform that work, has a close parallel with researchers at CSL, for example. Medical researchers at both WEHI and CSL are focused primarily on research and its impact, and both organisations look for the same skills in medical researchers.
43. The performance criteria for medical researchers at WEHI and other independent MRIs are based on discovery and translation/impact. Employees are expected to contribute to the application of their research, which can include:
- (a) communication of the research (through health care delivery guidelines, or hospital or government health care policies);
 - (b) developing commercial uses for the research (eg patenting of new medications and medical devices);
 - (c) working with NGOs and governments (eg to develop vaccines and public health strategies);
 - (d) use of the research in clinical care (eg developing new treatment guidelines); and

(e) scientific publication.

44. The work of medical researchers is scientific work, and involves the application of the scientific method. The scientific method is a systematic way of expanding our understanding of something by formulating a hypothesis, and testing this hypothesis through the collection and analysis of empirical evidence. The findings of scientific research should be reproducible.
45. This scientific work performed by all medical researchers requires peer review, regardless of whether the medical researcher is employed by an independent MRI, a hospital, a university or a commercial organisation. One way in which this is achieved is scientific publication. However, medical researchers at independent MRIs are not assessed purely on publication activity.
46. On this basis, I do not see a meaningful distinction between the work of medical researchers with a science degree from Australia, NZ or the UK compared to those with scientific qualifications from other countries. I am unaware of any independent MRI where the jurisdiction of a researcher's degree qualification is a requirement for employment. Independent MRIs employ medical researchers, some of whom are eminent in their field, and the qualifications of such medical researchers may or may not be from an Australian, NZ or UK University.
47. I also consider that the work of medical researchers with a science degree is no different from that of other medical researchers employed by independent MRIs. Regardless of whether a person is a research scientist, a research clinician, a research mathematician or holds some other qualification, these medical researchers are still engaging in basic, applied, translational or clinical medical research and are utilising the scientific method.
48. A 3, 4 or 5 year degree is the minimum qualification necessary for a medical researcher to undertake medical research at a graduate level. The work of all medical researchers requires the application of the critical thinking skills and knowledge of their subject matter acquired through their degrees.
49. I have reviewed the classifications in Schedule B of the PEA. I consider that the responsibilities of medical researchers at independent MRIs are generally described by these classification descriptions.
50. I have reviewed the draft classifications in the proposed Schedule C of the PEA, as varied by AAMRI and APESMA's Application. These classifications accurately describe the duties and distinguishing features of an MRI researcher, in particular the focus on impacting health guidelines, policy and advancement.

51. WEHI provides its medical researchers with terms and conditions that are equivalent to, or above, those in the PEA. To my knowledge, all independent MRIs provide such terms to their employees.

Diversity of independent MRI research employees

52. AAMRI has conducted a survey of its member institutes in order to determine how many medical researchers employed at independent MRIs are currently covered by the *Professional Employees Award 2010*. This survey is shown at **Appendix 2**.
53. AAMRI did not survey those 9 AAMRI members which are not independent legal entities. It also did not survey QIMR Berghofer Medical Research Institute, which is a statutory agency of government.
54. The remaining 36 independent MRIs were asked to provide AAMRI with the following information:
- (a) their total number of medical researchers;
 - (b) how many medical researchers had degrees in science from an Australian, NZ or UK university;
 - (c) how many medical researchers did not have a degree in science from one of those jurisdictions but had a degree in science from another university; and
 - (d) how many medical researchers did not have a degree in science but had a degree in another discipline.
55. All but one of the 36 independent MRIs provided a response. In providing responses to these questions, 6 institutes indicated that they were unable to provide complete figures on the jurisdiction or type of qualification and provided estimates based on the information available.
56. Staff at AAMRI compiled the responses to the survey, which found that:
- (a) There are approximately 2,761 medical researchers employed at the independent MRIs surveyed, which form approximately 58.6% of all staff employed by those MRIs;
 - (b) Approximately 70.1% of medical researchers employed by independent MRIs hold degrees in science from Australian, NZ or UK universities;

- (c) An additional 17.8% of medical researchers employed by independent MRIs hold a degree in science from another jurisdiction, meaning that 87.9% of medical researchers employed by independent MRIs hold a degree in science; and
- (d) Approximately 12.1% of medical researchers employed at independent MRIs do not hold a degree in science but do hold another degree which is necessary to perform their research duties.



PROFESSOR DOUGLAS HILTON

11 March 2016

CURRICULUM VITAE**Douglas James Hilton PhD FAA FTSE FAHMS**

The Walter and Eliza Hall Institute of Medical Research (WEHI)
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Profile

Professor Doug Hilton is the Director of Australia's oldest medical research institute, the Walter and Eliza Hall Institute (WEHI), and Head of the Department of Medical Biology, The University of Melbourne. Appointed to both positions in 2009, Prof. Hilton has served on the Boards of many organisations ranging from scientific bodies to biotech companies. He is the current President of the Association of Australian Medical Research Institutes (AAMRI). He is a former Board (including Scientific Advisory Board) member of the Australian Genome Research Facility (2006-10), Victorian Breast Cancer Research Consortium (2009-12), Cancer Council Victoria (2010), Victorian Cancer Agency Consultative Council (2013-14), MuriGen Pty Ltd, Zenyth Therapeutics (2006-7) and BIOTEC Thailand (2011-12) among others.

A PhD graduate in Cancer & Haematology, the University of Melbourne, Prof. Hilton is a world leader in the signalling pathways that control blood cell production with ~180 research papers, one book and eight book chapters to his name. His research is committed to translation into the commercial space and into the clinic for real health outcomes. Prof. Hilton is an inventor on 25 patent families; he co-founded the biotechnology company MuriGen Therapeutics Pty Ltd and actively collaborates with CSL on drug target discovery.

Academic Qualifications

1985 BSc, Monash University
 1986 BSc Honours, University of Melbourne
 1990 PhD, University of Melbourne

Current Appointments

2009- Director of the Walter and Eliza Hall Institute of Medical Research
 2009- Head, Department of Medical Biology, The University of Melbourne
 2009- Professor of Medical Biology, The University of Melbourne
 2006- Head, Division of Molecular Medicine, WEHI
 2011- Honorary Principal Fellow, Department of Zoology, The University of Melbourne
 2014- President, Association of Australian Medical Research Institutes (AAMRI)

Areas of Research Interest

Molecular Networks, Signal Transduction Pathways, Genetics, Blood Cells

Prizes and Awards

1984 Australian National University Vacation Scholarship
 1986 Macfarlane Burnet Prize, Ormond College, University of Melbourne
 1987-90 Anti-Cancer Council of Victoria, Postgraduate Scholarship
 1989 SEC Science and Technology Award
 1989 Victorian Young Achiever of the Year
 1991-93 Lucille P. Markey Visiting Fellowship
 1993-96 Queen Elizabeth II Postdoctoral Fellowship
 1994, 96 Anti -Cancer Council of Victoria, Hillcrest Friendship Club Research Award
 1996 Anti -Cancer Council of Victoria, Graham Middleton Research Award
 1997 The Burnet Prize, WEHI
 1998 Gottschalk Medal, Australian Academy of Science
 1999 Victorian "Tall Poppy", Australian Institute of Policy and Science (AIPS)
 2000 Amgen Medical Researcher Award, ASMR

- 2001 Commonwealth Health Minister's Award for Excellence in Health and Medical Research
- 2003 GlaxoSmithKline Australia Award for Research Excellence
- 2004 Fellow of the Australian Academy of Science
- 2006 COSMOS Bright Spark Award "Australia's Top 10 Scientific Minds Under 45"
- 2009 The Age Melbourne Magazine, "Top 100 People"
- 2010 Fellow of the Australian Academy of Technological Sciences and Engineering
- 2011 Milstein Award, International Society of Interferon and Cytokine Research
- 2011 Research Australia Leadership and Innovation Award
- 2012 Lemberg Medal, Australian Society of Biochemistry and Molecular Biology
- 2012 Australian Museum Eureka Prize for Outstanding Mentor of Young Researchers
- 2013 Ramaciotti Medal for Excellence in Biomedical Research
- 2015 Fellow of the Australian Academy of Health and Medical Sciences

Previous Appointments

- 1986-87 Research Assistant, Cancer Research Unit, WEHI
- 1987-89 Tutor, Department of Veterinary Science, University of Melbourne
- 1990 Postdoctoral Scientist, Cancer Research Unit, WEHI
- 1991-93 Postdoctoral Scientist, The Whitehead Institute for Biomedical Research, MIT
- 1993-96 Queen Elizabeth II Postdoctoral Fellow, Cancer Research Unit, WEHI
- 1993-96 Project Leader, Cooperative Research Centre for Cellular Growth Factors
- 1996-05 Laboratory Head, Division of Cancer and Haematology, WEHI
- 1997-01 Director, Cooperative Research Centre for Cellular Growth Factors
- 1997-99 NHMRC Senior Research Fellow, Division of Cancer and Haematology, WEHI
- 2000-02 NHMRC Principal Research Fellow, Cancer and Haematology, WEHI
- 2004-05 NHMRC Senior Principal Research Fellow, Cancer and Haematology, WEHI
- 2006-07 NHMRC Senior Principal Research Fellow, Division of Molecular Medicine, WEHI
- 2006-09 Chief Scientific Officer, MuriGen Therapeutics
- 2007-10 NHMRC Australia Fellow

Membership of Executive and Advisory Boards (current)

- 2006- Children's Cancer Institute Australia – Scientific Advisory Committee
- 2009- Australian Cancer Research Foundation – Medical Research Advisory Committee
- 2009- Victorian Comprehensive Cancer Centre – Board, Research Committee, Steering Committee
- 2009- Harry Perkins Institute for Medical Research, Scientific Advisory Committee
- 2009- Biomedical Research Victoria (formerly Bio21 Cluster) – Board
- 2009- The University of Melbourne – Academic Board
- 2010- Victorian Cancer Agency Consultative Council – Member
- 2010- Victor Chang Cardiac Research Institute – Scientific Advisory Board
- 2010- South Australian Health and Medical Research Institute – Research Committee
- 2010- Association of Australian Medical Research Institutes (AAMRI) – Board (President 2014-16)
- 2011- Go8 Deans of Medicine and MRI Directors Committee – Member
- 2012- Hermon Slade Foundation – Research Committee
- 2012- Parkville Precinct Health Services CEOs, Institute Directors and Dean of Medicine
- 2014- Australian Institute of Tropical Health and Medicine – Advisory Board
- 2014- Institute for Molecular Bioscience UQ – Scientific Advisory Board
- 2014- Medical Research Future Fund (MRFF) Action Group
- 2015- Male Champions of Change Victoria
- 2016- NHMRC Expert Advisory Group for Structural Review

Membership of Societies

- 1999- Australian Society of Medical Research (ASMR)
- 2000- Australian Society of Biochemistry and Molecular Biology (ASBMB)
- 2001- American Society of Biochemistry and Molecular Biology (ASBMB)

- 2004- Australian Academy of Science
- 2005- International Cytokine and Interferon Society (formerly ICS and ISICR)
- 2006- International Society for Stem Cell Research
- 2009- American Society of Hematology
- 2010- Australian Academy of Technological Sciences and Engineering
- 2015- Australian Academy of Health and Medical Sciences

Research Support (current)

- 2011-18 ARC – Stem Cells Australia. With Martin Pera et al. (Hilton component \$2,100,000)
- 2011-16 CSIRO SIEF “Understanding normal and aberrant stem cell biology to improve human health”. With Susie Nilsson, Andrew Laslett, David Haylock, Jane Visvader, Geoff Lindeman, Warren Alexander, Don Metcalf, Andrew Nash (Hilton component \$2,250,000)
- 2012-16 NHMRC Program Grant 1016647 “Molecular regulation of blood cell production and function”. With Nicos Nicola et al. (Hilton component \$2,311,340).
- 2013-15 NHMRC Project Grant 1048087 “Molecular regulation of eosinophil production: a basis for intervention in inflammatory disease”, held with Clare Morgan (\$588,252)
- 2015-19 Alfred Felton Bequest “Mapping genetic treatment pathways for children with cancer”, with Clara Gaff, Paul Ekert and Ian Majewski (\$750,000)
- 2016-20 NHMRC Targeted Call for Genomics Revolution in Health Care “Preparing Australia for genomic medicine: A proposal by the Australian Genomics Health Alliance, with Kathryn North et al. (\$25M)
- 2017-21 NHMRC Program Grant “Regulation of haemopoietic and immune cells in health and disease” (CIA Warren Alexander, Jeff Babon, Matthew Cook, Doug Hilton, Ben Kile, Nic Nicola, Andrew Roberts, Carola Vinuesa and Ian Wicks) \$19.9M

Industry Consultancies

- 1992-93 Consultant, Arris Pharmaceutical Company
- 1993-95 Consultant, AMRAD Corporation
- 1995-97 Director, Cytokine Research, AMRAD Corporation
- 1995-98 Member, Scientific Committee Overseeing Collaboration with Chugai Pharmaceutical
- 1997-02 Consultant AMRAD Corporation
- 1997-01 Director, CRC-CGF
- 1999-00 Consultant, AMGEN through Wray and Associates (Patent Lawyers)
- 2001-02 Member Scientific Committee Overseeing Collaboration with AMRAD and GSK
- 2005- Member Scientific Committee Overseeing Collaboration between WEHI, CSL and MuriGen
- 2006-07 Member Scientific Advisory Board, Zenyth Therapeutics
- 2011-12 Member Scientific Advisory Board, BIOTEC, Thailand

Start-Ups

- 1999- Co-Founder, MuriGen Pty Ltd (with Prof Nick Nicola, Dr Warren Alexander and Prof Simon Foote).

Patents

Inventor on 24 patent families:

Leukemia Inhibitory Factor – patents cover matter substance and utility, including a separate patent on “In vitro propagation of embryonic stem cells”. LIF allows mouse stem cells to be grown in culture, and has since been used by labs worldwide.

Suppressor of Cytokine Signalling (SOCS) – discovered by Hilton in 1997, patents cover matter of substance and utility.

Target for therapeutic intervention – patent covers identification and determination of drug targets.

Hematopoiesis and regulation thereof – patent covers research findings on blood cell production.

Publications

~180 research papers, one book and eight book chapters

H-index=72, average citations 85.70, total citations 20,140 as of 28 July 2015 ISI Web of Science

Refereed Journal Articles

1. Gearing DP, Gough NM, King JA, **Hilton DJ**, Nicola NA, Simpson RJ, Nice EC, Kelso A and Metcalf D. Molecular cloning and expression of cDNA encoding murine myeloid leukemia inhibitory factor (LIF). *EMBO J.* **6**: 3995-4002, 1987. **IF=10.43 (449 citations)**
2. **Hilton DJ**, Nicola NA, Gough NM and Metcalf D. Resolution and purification of three distinct factors produced by Krebs Ascites cells which have differentiation-inducing activity on murine myeloid leukemic cell lines. *J. Biol. Chem.* **263**: 9238-9243, 1988. **IF=4.57 (131 citations)**
3. **Hilton DJ**, Nicola NA and Metcalf D. Purification of a murine leukemia inhibitory factor from Krebs Ascites cells. *Anal. Biochem.* **173**: 359-367, 1988. **IF=2.22 (129 citations)**
4. **Hilton DJ**, Nicola NA, and Metcalf D. Specific binding of murine leukemia inhibitory factor to normal and leukemic monocytic cells. *Proc. Natl. Acad. Sci. USA* **85**: 5971-5975, 1988. **IF=9.67 (125 citations)**
5. Williams RL, **Hilton DJ**, Pease S, Willson TA, Stewart CL, Gearing DP, Wagner EF, Metcalf D, Nicola NA and Gough NM. Myeloid leukemia inhibitory factor (LIF) maintains the developmental potential of embryonic stem cells. *Nature* **336**: 684-687, 1988. **IF=41.46 (1305 citations)**
6. Simpson RJ, **Hilton DJ**, Nice EC, Rubira MR, Metcalf D, Gearing DP, Gough NM. and Nicola NA. Structural characterisation of a murine myeloid leukemia inhibitory factor. *Eur. J. Biochem.* **175**: 541-547, 1988. **IF=4 (24 citations)**
7. Metcalf D, **Hilton DJ** and Nicola NA. Clonal analysis of the actions of the murine leukemia inhibitory factor on leukemic and normal murine hemopoietic cells. *Leukemia* **2**: 216-221, 1988. **IF=10.43 (126 citations)**
8. Nicola NA, Peterson L, **Hilton DJ** and Metcalf D. Cellular processing of murine colony-stimulating factor (Multi-CSF, GM-CSF, G-CSF) receptors by normal hemopoietic cells and cell lines. *Growth Factors* **1**: 41-49, 1988. **IF=3.4 (59 citations)**
9. Gough NM, Gearing DP, King JA, Willson TA, **Hilton DJ**, Nicola NA and Metcalf D. Molecular cloning and expression of the human homologue of the murine gene encoding myeloid leukemia inhibitory factor. *Proc. Natl. Acad. Sci. USA* **85**: 2623-2627, 1988. **IF=9.67 (190 citations)**
10. Allan EH, **Hilton DJ**, Evely R, Brown MA, Gough NM, Ng KW, Metcalf D, Nicola NA and Martin TJ. Osteoblasts display receptors for and responses to leukemia inhibitory factor (LIF). *J. Cell. Physiol.* **145**: 110-119, 1990. **IF=3.84 (103 citations)**
11. Rodan SB, Wesoloski G, **Hilton DJ**, Nicola NA and Rodan GA. Leukemia inhibitory factor binds with high affinity to pre-osteoblastic RCT-1 cells and potentiates the retinoic acid induction of alkaline phosphatase. *Endocrinology* **127**: 1602-1608, 1990. **IF=4.5 (49 citations)**
12. Reid IR, Lowe C, Cornish J, Skinner SSM, **Hilton DJ**, Willson TA, Gearing DP and Martin TJ. Leukemia inhibitory factor: a novel bone active cytokine. *Endocrinology* **126**: 1416-1420, 1990. **IF=4.5 (133 citations)**
13. **Hilton DJ**, Nicola NA and Metcalf D. Distribution and characterisation of receptors for leukemia inhibitory factor on murine hemopoietic and hepatic cells. *J. Cell. Physiol.* **146**: 207-215, 1991. **IF=3.84 (85 citations)**
14. **Hilton DJ**, Nicola NA, Wearing PM, and Metcalf D. The clearance and fate of leukemia inhibitory factor (LIF) after injection into mice. *J. Cell. Physiol.* **148**: 430-439, 1991. **IF=3.84 (42 citations)**
15. Metcalf D, **Hilton DJ** and Nicola NA. Leukemia inhibitory factor can potentiate murine megakaryocyte production in vitro. *Blood* **77**: 2150-2153, 1991. **IF=10.45 (106 citations)**
16. Murphy M, Reid K, **Hilton DJ** and Bartlett PF. Generation of sensory neurons is stimulated by leukemia inhibitory factor. *Proc. Natl. Acad. Sci. USA* **88**: 3498-3501, 1991. **IF=9.67 (189 citations)**
17. **Hilton DJ** and Nicola NA. Kinetic and equilibrium analyses of LIF binding to receptors on cells, membranes and in detergent solution. *J. Biol. Chem.* **267**: 10238-10247, 1992. **IF=4.57 (47 citations)**

18. Watowich SS, Yoshimura A, Longmore G, **Hilton DJ**, Yoshimura Y and Lodish HF. Homodimerization and constitutive activation of the erythropoietin receptor. *Proc. Natl. Acad. Sci. USA* **89**: 2140-2145, 1992. **IF=9.67 (290 citations)**
19. Hendry IA, Murphy M, **Hilton DJ**, Nicola NA, and Bartlett PF. Binding and retrograde transport of leukaemia inhibitory factor by the sensory nervous system. *J. Neurosci.* **12**: 3427-3434, 1992. **IF=6.34 (86 citations)**
20. Brown G, Brown MA, **Hilton DJ**, Gough NM, and Sleight, M. Inhibition of differentiation in a murine F9 embryonal carcinoma sub-line by leukemia inhibitory factor (LIF). *Growth Factors* **7**: 41-52, 1993. **IF=3.4 (11 citations)**
21. **Hilton DJ**, Hilton AA, Raicevic A, Rakar S, Harrison-Smith M, Gough NM, Begley CG, Metcalf D, Nicola NA and Willson TA. Cloning of a murine IL-11 receptor alpha chain; requirement of gp130 for high affinity binding and signal transduction. *EMBO J.* **13**: 4765-75, 1994. **IF=10.43 (229 citations)**
22. Watowich SS, **Hilton DJ** and Lodish HF. Activation and inhibition of erythropoietin receptor function: The role of receptor dimerization. *Mol. Cell. Biol.* **14**: 3535-3549, 1994. **IF=4.78 (168 citations)**
23. **Hilton DJ**, Watowich SS, Murray PJ and Lodish HF. Increased cell surface expression and enhanced folding in the endoplasmic reticulum of a mutant erythropoietin receptor. *Proc. Natl. Acad. Sci. USA* **92**: 190-194, 1995. **IF=9.67 (63 citations)**
24. Murray PM, Watowich SS, Lodish HF, Young R and **Hilton DJ**. Epitope tagging of the human endoplasmic reticulum binding Hsp70 protein BiP to facilitate analysis of NiP substrate interactions. *Anal. Biochem.* **229**: 170-179, 1995. **IF=2.22 (13 citations)**
25. Hilton AA, Slavin AJ, **Hilton DJ** and Bernard CCA. Characterisation of cDNA and genomic clones encoding human myelin oligodendrocyte glycoprotein. *J. Neurochem.* **65**: 309-318, 1995. **IF=4.28 (57 citations)**
26. Metcalf D, Willson TA, **Hilton DJ**, DiRago L and Mifsud S. Production of haemopoietic regulatory factors in cultures of adult and foetal organs: measurement in specific bioassays. *Leukemia* **9**: 1556-1564, 1995. **IF=10.43 (46 citations)**
27. **Hilton DJ**, Zhang J-G, Metcalf D, Alexander W, Nicola NA and Willson TA. Cloning and characterisation of a novel shared component of the interleukin-4 and interleukin-13 receptors. *Proc. Natl. Acad. Sci. USA* **93**: 497-501, 1996. **IF=9.67 (348 citations)**
28. **Hilton DJ**, Watowich SS, Katz L and Lodish HF. Saturation mutagenesis of the WSXWS motif of the erythropoietin receptor. *J. Biol. Chem.* **271**: 4699-4708, 1996. **IF=4.57 (83 citations)**
29. Nandurkar HH, **Hilton DJ**, Nathan P, Willson TA, Nicola NA and Begley CG. hIL11 receptor requires gp130 for signalling: demonstration by molecular cloning of the receptor. *Oncogene* **12**: 585-593, 1996. **IF=8.46 (64 citations)**
30. Romas E, Udagawa N, Tamura T, Saito M, Taga T, **Hilton DJ**, Suda T, Ng KW and Martin TJ. The role of gp130-mediated signals in osteoclast development: regulation of production of interleukin-11 by osteoblasts and distribution of its receptor in bone marrow cultures. *J. Exp. Med.* **183**: 2581-91, 1996. **IF=12.52 (130 citations)**
31. Baumann H, Wang Y, Morella KK, Lai C-F, Dams H, **Hilton DJ**, Hawley RG and Mackiewicz A. The complex of soluble interleukin-11 receptor and IL-11 acts as an IL-6-type cytokine in hepatic and non-hepatic cells. *J. Immunol.* **157**: 284-90, 1996. **IF=4.92 (49 citations)**
32. Nicola NA, Viney E, **Hilton DJ**, Roberts BA and Willson TA. Molecular cloning of two novel transmembrane ligands for Eph-related Kinases (LERKs) that are related to LERK-2. *Growth Factors* **13**: 141-149, 1996. **IF=3.4 (18 citations)**
33. Robb L, **Hilton DJ**, Willson TA and Begley CG. Structural Analysis of the functional gene and pseudogene encoding the murine interleukin-11 receptor alpha chain. *J. Biol. Chem.* **271**: 13754-13761, 1996. **IF=4.57 (34 citations)**
34. Nicholson SE, Starr R, Novak U, **Hilton DJ** and Layton JE. Tyrosine residues in the granulocyte-colony stimulating factor receptor (G-CSFR) mediate G-CSF induced differentiation of murine myeloid leukaemic cells. *J. Biol. Chem.* **271**: 26947-26953, 1996. **IF=4.57 (57 citations)**

35. Gainsford T, Willson TA, Metcalf D, Handman E, McFarlane C, Ng A, Nicola NA, Alexander WA and **Hilton DJ**. Leptin can induce proliferation, differentiation and functional activation of haemopoietic cells. *Proc. Natl. Acad. Sci. USA* **93**: 14564-14568, 1996. **IF=9.67 (529 citations)**
36. Begley CG, Rasko JEL, Curtis D, Takagi K, Metcalf D, **Hilton DJ**, Roberts B, Nicola NA and Rossner MT. Murine Flt3 ligand protects M1 leukemic cells from LIF-induced differentiation and suppression of self-renewal. *Exp. Hematol.* **24**: 1247-1257, 1996. **IF=2.48 (12 citations)**
37. Starr R, Willson TA, Viney EM, Murray L, Rayner JR, Jenkins BJ, Gonda TJ, Alexander WS, Metcalf D, Nicola NA and **Hilton DJ**. A family of cytokine-inducible inhibitors of signal transduction. **387**: 917-921, 1997. *Nature* **IF=41.46 (1466 citations)**
38. Zhang J-G, **Hilton DJ**, Willson TA, Alexander WS, Roberts BA, McFarlane C, Metcalf D and Nicola NA. Identification and characterisation of a mouse serum IL-13 binding protein: evidence that is different to the cloned IL-13 receptor alpha chain. *J. Biol. Chem.* **272**: 9474-9480, 1997. **IF=4.57 (112 citations)**
39. Douglas AM, Goss GA, Sutherland RL, **Hilton DJ**, Berndt MC, Nicola NA and Begley CG. Expression and function of members of the cytokine receptor superfamily on breast cancer cells. *Oncogene* **14**: 661-669, 1997. **IF=8.46 (77 citations)**
40. Robb L, **Hilton DJ**, Brook-Carter PT and Begley CG. Identification of a second murine interleukin-11 receptor alpha chain gene (IL11Ra2) with a restricted pattern of expression. *Genomics* **40**: 387-394, 1997. **IF=2.28 (24 citations)**
41. Starr R, Novak U, Willson TA, Inglese M, Murphy V, Alexander WS, Metcalf D, Nicola NA, **Hilton DJ** and Ernst M. Distinct roles for leukaemia inhibitory factor receptor alpha chain and gp130 in cell type specific signal transduction. *J. Biol. Chem.* **272**: 19982-19986, 1997. **IF=4.57 (45 citations)**
42. Orchansky PL, Ayres SD, **Hilton DJ** and Schrader JW. An interleukin (IL)-13 receptor lacking the cytoplasmic domain fails to transduce IL-13-induced signals and inhibits responses to IL-4. *J. Biol. Chem.* **272**: 22940-22947, 1997. **IF=4.57 (40 citations)**
43. Nandurkar HH, Robb L, Nicholl JK, **Hilton DJ**, Sutherland GR and Begley CG. The gene for the human interleukin-11 receptor alpha chain locus is highly homologous to the murine gene and contains alternatively spliced first exons. *Int. J. Bioch. Cell Biol.* **29**: 753-66, 1997. **IF=4.05 (7 citations)**
44. Curtis DJ, **Hilton DJ**, Roberts B, Murray L, Nicola NA and Begley CG. Recombinant soluble interleukin-11 receptor alpha chain can both mediate and inhibit an interleukin-11 response. *Blood* **90**: 4403-4412, 1997. **IF=10.45 (26 citations)**
45. **Hilton DJ**, Richardson RT, Alexander WS, Viney EM, Willson TA, Sprigg NS, Starr R, Nicholson SE, Metcalf D and Nicola NA. Twenty proteins containing a c-terminal SOCS box comprise five structural classes. *Proc. Natl. Acad. Sci. USA* **95**: 114-119, 1998. **IF=9.67 (510 citations)**
46. Biben C, Stanley E, Fabri L, Rhinn M, Drinkwater C, Lah M, Wang C, Nash A, **Hilton DJ**, Ang S-L, Mohun T and Harvey RP. Murine cerberus homologue (mCer1): a candidate anterior patterning molecule. *Developmental Biol.* **194**: 135-151, 1998. **IF=3.55 (152 citations)**
47. Adams TE, Hansen JA, Starr R, Nicola NA, **Hilton DJ** and Billestrup N. Growth Hormone preferentially induces the rapid, transient expression of SOCS3, a novel inhibitor of cytokine receptor signalling. *J. Biol. Chem.* **273**: 1285-1287, 1998. **IF=4.57 (237 citations)**
48. Hammacher A, Richardson RT, Layton JE, Smith DK, Angus L, **Hilton DJ**, Nicola NA, Wijdenes J and Simpson RJ. The immunoglobulin-like module of gp130 is required for signalling by interleukin-6 but not leukaemia inhibitory factor. *J. Biol. Chem.* **273**: 22701-22707, 1998. **IF=4.57 (55 citations)**
49. Novak U, Marks D, Nicholson S, **Hilton DJ** and Paradiso L. Overexpression of SOCS1 and SOCS3, but not SOCS2 or CIS inhibits IL-6 mediated but not CSF-1 mediated macrophage differentiation. *Growth Factors* **15**: 159-171, 1998. **IF=3.4 (15 citations)**
50. Stanley E, Biben C, Kotecha S, Fabri L, Tajbakhsh S, Wang C-C, Hatzistavrou T, Roberts B, Drinkwater C, Lah M, Buckingham M, **Hilton DJ**, Nash A, Mohun T. and Harvey RP. DAN is a secreted glycoprotein related to Xenopus cerberus. *Mech. Dev.* **77**: 173-184, 1998. **IF=2.44 (74 citations)**

51. Starr R, Metcalf D, Elefanty AG, Brysha M, Willson TA, Nicola NA, **Hilton DJ** and Alexander WS. Liver degeneration and lymphoid deficiencies in mice lacking suppressor of cytokine signaling-1. *Proc. Natl. Acad. Sci. USA* **95**: 14395-14399, 1998. **IF=9.67 (312 citations)**
52. Zhang Y, Willson TA, Metcalf D, Cary D, **Hilton DJ**, Clark R and Nicola NA. The Box-1 region of the leukemia inhibitory factor receptor alpha chain is sufficient for haemopoietic cell proliferation and differentiation. *J. Biol. Chem.* **273**: 34370-34383, 1998. **IF=4.57 (12 citations)**
53. Nicholson SE, Willson TA, Farley A, Starr R, Zhang J-G, Alexander WS, Metcalf D, **Hilton DJ** and Nicola NA. Mutational analyses of SOCS1 and SOCS3 suggest a dual domain requirement but distinct mechanisms for inhibition of LIF and IL-6 signal transduction. *EMBO J.* **18**: 375-385, 1999. **IF=10.43 (324 citations)**
54. Zhang J-G, Farley A, Nicholson SE, Willson TA, Zugaro LM, Simpson RJ, Moritz RL, Cary D, Richardson R, Hausmann G, Kile BT, Kent SBH, Alexander WS, Metcalf D, **Hilton DJ**, Nicola NA and Baca M. The conserved SOCS box motif in suppressors of cytokine signalling binds to elongins B and C and may couple proteins to proteasomal degradation. *Proc. Natl. Acad. Sci. USA* **96**: 2071-2076, 1999. **IF=9.67 (434 citations)**
55. Losman JA, Chen XP, **Hilton DJ** and Rothman P. Cutting Edge: SOCS1 is a potent inhibitor of IL-4 signal transduction. *J. Immunol.* **162**: 3770-3774, 1999. **IF=4.92 (136 citations)**
56. Alexander WS, Rakar S, Robb L, Farley A, Willson TA, Zhang J-G, Hartley L, Kikuchi Y, Kojima T, Nomura H, Hasegawa M, Maeda M, Fabri L, Jachno A, Metcalf D, Nicola NA and **Hilton DJ** Suckling defect in mice lacking the soluble haemopoietin receptor NR6. *Curr. Biol.* **9**: 605-608, 1999. **IF=9.57 (44 citations)**
57. Metcalf D, Alexander WS, Elefanty AG, Nicola NA, **Hilton DJ**, Starr R, Mifsud, S and Di Rago L. Aberrant hematopoiesis in mice with inactivation of the gene encoding SOCS1. *Leukemia* **13**:926-934, 1999. **IF=10.43 (53 citations)**
58. Alexander WS, Starr R, Fenner JE, Scott CL, Handman E, Sprigg NS, Corbin JE, Cornish AL, Darwiche R, Owczarek CM, Kay TWH, Nicola NA, Hertzog PJ, Metcalf D and **Hilton DJ**. SOCS1 is a critical regulator of interferon gamma signalling and prevents the potentially fatal neonatal actions of this cytokine. *Cell* **98**: 597-608, 1999. **IF= 32.24 (496 citations)**
59. Hansen JA, Lindberg K, **Hilton DJ**, Nielsen JH and Billestrup N. Mechanism of inhibition of growth hormone receptor signalling by suppressor of cytokine signalling proteins. *Mol. Endocrinol.* **13**: 1832-1843, 1999. **IF= 4.02 (146 citations)**
60. Davey HW, McLachlan MJ, Wilkins RJ, **Hilton DJ** and Adams TE. STAT5b mediates the GH-induced expression of SOCS2 and SOCS3 mRNA in the liver. *Mol. Cell. Endocrinol.* **158**: 111-116, 1999. **IF= 4.41 (90 citations)**
61. Hammacher A, Wijdenes J, **Hilton DJ**, Nicola NA, Simpson RJ and Layton JE. Ligand-specific utilisation of the extracellular membrane-proximal region of the gp130-related signalling receptors. *Biochem. J.* **345**: 25-32, 2000. **IF= 4.4 (27 citations)**
62. Emanuelli B, Peraldi P, Filloux C, Sawkn-Verheller D, **Hilton DJ** and Van Obberghen E. SOCS3 is an insulin-induced negative regulator of insulin signalling. *J. Biol. Chem* **275**: 15985-15991, 2000. **IF=4.57 (306 citations)**
63. Metcalf D, Greenhalgh CJ, Viney E, Willson T, Nicola NA, **Hilton DJ**, and Alexander WS. Gigantism in mice lacking suppressor of cytokine signaling-2. *Nature* **405**:1069-1073, 2000. **IF=41.46 (308 citations)**
64. Nicholson SE, De Souza D, Fabri LJ, Willson TA, Zhang J-G, Silva A, Asimarkis M, Farley A, Nash AD, Metcalf D, **Hilton DJ**, Nicola NA and Baca M. Suppressor of cytokine signalling-3 preferentially binds to the SHP-2-binding site on the shared cytokine receptor gp130. *Proc. Natl. Acad. Sci. USA* **97**: 6493-6498, 2000. **IF=9.67 (309 citations)**
65. Kile BT, Viney EM, Willson TA, Brodnicki TC, Cancilla MR, Herlihy AS, Croker BA, Baca M, Nicola NA, **Hilton DJ** and Alexander WS. Cloning and characterisation of the genes encoding the ankyrin repeat and SOCS box-containing proteins Asb-1, Asb-2, Asb-3 and Asb-4. *Gene* **258**: 31-41, 2000. **IF=2.14 (41 citations)**

66. Curtis DJ, Jane SM, **Hilton DJ**, Dougherty L, Bodine DM and Begley CG. Adaptor protein SKAP55R is associated with myeloid differentiation and growth arrest. *Exp. Hematol.* **28**: 1250-1259, 2000. **IF=2.48 (20 citations)**
67. Brysha M, Zhang J-G, Corbin JE, Alexander WS, Nicola NA, **Hilton DJ** and Starr R. Suppressor of cytokine signalling-1 attenuates the duration of interferon g signal transduction in vitro and in vivo. *J. Biol. Chem.* **276**: 22086-22089, 2001. **IF=4.57 (82 citations)**
68. Kile BJ, Metcalf D, Mifsud S, Di Rago L, Nicola NA, **Hilton DJ**, Alexander WS. Functional analysis of Asb-1 using genetic modification in mice. *Mol. Cell. Biol.* **21**: 6189-6197, 2001. **IF=4.78 (42 citations)**
69. Lindeman GJ, Wittlin S, Lada H, Naylor MJ, Santamaria M, Zhan J-G, Starr R, **Hilton DJ**, Alexander WS, Ormandy CJ, Visvader J. *SOCS1* deficiency results in accelerated mammary gland development and rescues lactation in prolactin receptor-deficient mice. *Genes Dev* **15**: 1631-1636, 2001. **IF=10.8 (79 citations)**
70. Peraldi P, Filloux C, Emanuelli B, **Hilton DJ** and van Obberghen E. Insulin induces SOCS-3 tyrosine phosphorylation through JAK. *J. Biol. Chem.* **276**: 24614-24620, 2001. **IF=4.57 (47 citations)**
71. Roberts AW, Robb L, Rakar S, Hartley L, Cluse L, Nicola NA, Metcalf D, **Hilton DJ**, Alexander WS. Placental defects and embryonic lethality in mice lacking suppressor of cytokine signaling 3. *Proc. Natl. Acad. Sci. U S A* **98**: 9324-9329, 2001. **IF=9.67 (201 citations)**
72. Tam SP, Lau P, Djiane J., **Hilton DJ** and Waters M. Tissue specific induction of SOCS gene expression by PRL. *Endocrinol.* **142**: 5015-5026, 2001. **IF=4.5 (46 citations)**
73. Emanuelli B, Peraldi P, Filloux C, Reidinger K, **Hilton DJ**, Hotamisgil GS and van Obberghen E. SOCS-3 inhibits insulin signaling and is up-regulated in response to TNF α in the adipose tissue of obese mice. *J. Biol. Chem.* **276**: 47944-47949, 2001. **IF=4.57 (265 citations)**
74. Zhang J-G, Metcalf D, Rakar S, Asimakis M, Greenhalgh CJ, Willson TA, Starr R, Nicholson SE, Carter W, Alexander WS, **Hilton DJ** and Nicola NA. The SOCS box of suppressor of cytokine signaling-1 is important for inhibition of cytokine action in vivo. *Proc. Natl. Acad. Sci. USA* **98**: 13261-13265, 2001. **IF=9.67 (99 citations)**
75. Metcalf D, Mifsud S, Di Rago L, Nicola NA, **Hilton DJ** and Alexander WS. Polycystic kidneys and chronic inflammatory lesions are the delayed consequence of loss of the suppressor of cytokine signaling-1. *Proc. Natl. Acad. Sci. USA* **99**: 943-948, 2002. **IF=9.67 (66 citations)**
76. Baird PN, Chiu D, Vincent A, Alexander WS, Foote SF, Guymer RH and **Hilton DJ**. Generation of mouse models of retinal disease using ENU mutagenesis. *Vision Res.* **42**:479-485, 2002. **IF=1.8 (10 citations)**
77. Ungureanu D, Saharinen P, Junttila I, **Hilton DJ** and Silvennoinen O. Regulation of JAK2 through the ubiquitin proteasome pathway involves phosphorylation of JAK2 on Y1007 and interaction with SOCS1 *Mol. Cell. Biol.* **22**: 3316-3326, 2002. **IF=4.78 (163 citations)**
78. Krebs DL, Uren RT, Metcalf D, Rakar S, Zhang J-G, Starr R, De Souza DP, Hanzinikolas K, Eyles J, Connolly LM, Simpson RJ, Nicola NA, Nicholson SN, Baca M, **Hilton DJ** and Alexander WS. SOCS-6 binds to IRS-4 and mice lacking SOCS-6 exhibit mild growth retardation. *Mol. Cell. Biol.* **22**: 4567-4577, 2002. **IF=4.78 (89 citations)**
79. Richardson RT, Starr R, Angus LJJ and **Hilton DJ**. A somatic cell genetic system for dissecting hemopoietic cytokine signal transduction *J. Biol. Chem.* **277**: 25624-25630, 2002. **IF=4.57 (0 citations)**
80. Greenhalgh CJ, Bertolino P, Asa SL, Metcalf D, Corbin JE, Adams TE, Davey HW, Nicola NA, **Hilton DJ** and Alexander WS. Growth enhancement in suppressor of cytokine signalling 2 (SOCS-2)-deficient mice is dependent on signal transducer and activator of transcription 5b (STAT5b). *Mol. Endocrinol.* **16**: 1394-406, 2002. **IF= 4.02 (97 citations)**
81. De Souza D, Fabri LJ, Nash A, **Hilton DJ**, Nicola NA and Baca M. SH2 domains from suppressor of cytokine signaling-3 and protein tyrosine phosphatase SHP-2 have similar binding specificities. *Biochemistry* **41**: 9229-36, 2002. **IF= 3.02 (72 citations)**
82. Greenhalgh CJ, Metcalf D, Thaus AL, Corbin JE, Uren RT, Morgan PO, Fabri LJ, Zhang J-G, Martin HM, Willson TA, Billestrup N, Nicola NA, Baca M, Alexander WS, and **Hilton DJ**. Biological evidence that

- SOCS-2 can act either as an enhancer or suppressor of growth hormone signalling. *J. Biol. Chem.* **277**: 40181-4, 2002. **IF=4.57 (115 citations)**
83. Eyles JL, Metcalf D, Grusby MJ, **Hilton DJ**, and Starr R. Negative regulation of interleukin-12 signalling by suppressor of cytokine signaling-1. *J. Biol. Chem.* **277**: 43735-40, 2002. **IF=4.57 (67 citations)**
 84. Carpinelli MR, Wicks I, Sims NA, Hanzinikolas K, O'Donnell K, Burt R, Foote SJ, Bahlo M, Alexander WS and **Hilton DJ**. An ethyl-nitrosourea-induced point mutation in phex causes exon skipping, x-linked hypophosphatemia, and rickets. *Am. J. Path.* **161**: 1925-33, 2002. **IF= 4.59 (28 citations)**
 85. Cornish AL, Davey GM, Metcalf D, Purton JF, Corbin JE, Greenhalgh CJ, Darwiche R, Wu L, Nicola NA, Godfrey DI, Heath WR, **Hilton DJ**, Alexander WS and Starr R. SOCS-1 has IFN γ -independent actions in T-cell homeostasis. *J. Immunol.* **170**: 878-886, 2003. **IF=4.92 (48 citations)**
 86. Cornish AL, Chong MM, Davey GM, Darwiche R, Nicola NA, **Hilton DJ**, Kay TW, Starr R and Alexander WS. Suppressor of cytokine signaling-1 regulates signaling in response to interleukin-2 and other gamma c-dependent cytokines in peripheral T cells. *J. Biol. Chem.* **278**: 22755-61, 2003. **IF=4.57 (70 citations)**
 87. Chong MM, Cornish AL, Darwiche R, Stanley EG, Purton JF, Godfrey DI, **Hilton DJ**, Starr R, Alexander WS and Kay TW. Suppressor of cytokine signaling-1 is a critical regulator of interleukin-7-dependent CD8+ T cell differentiation. *Immunity* **18**: 475-87, 2003. **IF=21.56 (105 citations)**
 88. Ridderstrale M, Amstrup J, **Hilton DJ**, Billestrup N and Tornqvist H. SOCS-3 is involved in the downregulation of the acute insulin-like effects of growth hormone in rat adipocytes by inhibition of Jak2/IRS-1 signaling. *Horm. Metab. Res.* **35**: 169-77, 2003. **IF=2.12 (12 citations)**
 89. Croker BA, Krebs DL, Zhang JG, Wormald S, Willson TA, Stanley EG, Robb L, Greenhalgh CJ, Forster I, Clausen BE, Nicola NA, Metcalf D, **Hilton DJ**, Roberts AW, Alexander WS. SOCS3 negatively regulates IL-6 signaling *in vivo*. *Nat. Immunol.* **4**:540-5, 2003. **IF=20 (424 citations)**
 90. Sarna MK, Ingley E, Busfield SJ, Cull VS, Lepere W, McCarthy DJ, Wright MJ, Palmer GA, Chappell D, Sayer MS, Alexander WS, **Hilton DJ**, Starr R, Watowich SS, Bittorf T, Klinken SP, Tilbrook PA. Differential regulation of SOCS genes in normal and transformed erythroid cells. *Oncogene* **22**: 3221-30, 2003. **IF=8.46 (22 citations)**
 91. Starr R, **Hilton DJ**. Defining control: regulation of dendritic cell activation and immune homeostasis by SOCS1. *Immunity* **19**: 308-9, 2003. **IF=21.56 (4 citations)**
 92. Croker BA, Metcalf D, Robb L, Wei W, Mifsud S, DiRago L, Cluse LA, Sutherland KD, Hartley L, Williams E, Zhang JG, **Hilton DJ**, Nicola NA, Alexander WS, Roberts AW. SOCS3 is a critical physiological negative regulator of G-CSF signaling and emergency granulopoiesis. *Immunity* **20**: 153-65, 2004. **IF=21.56 (149 citations)**
 93. Carpinelli MR*, **Hilton DJ***, Metcalf D, Antonchuk JL, Hyland CD, Mifsud SL, Di Rago L, Hilton AA, Willson TA, Roberts AW, Ramsay RG, Nicola NA, Alexander WS. Suppressor screen in Mpl $^{-/-}$ mice: c-Myb mutation causes supraphysiological production of platelets in the absence of thrombopoietin signaling. *Proc. Natl. Acad. Sci. U S A* **101**: 6553-8, 2004. **IF=9.67 (115 citations)**
 94. Antonchuk J, Hyland CD, **Hilton DJ**, Alexander WS. Synergistic effects on erythropoiesis, thrombopoiesis, and stem cell competitiveness in mice deficient in thrombopoietin and steel factor receptors. *Blood* **104**: 1306-13, 2004. **IF=10.45 (15 citations)**
 95. Brender C, Columbus R, Metcalf D, Handman E, Starr R, Huntington N, Tarlinton D, Odum N, Nicholson SE, Nicola NA, **Hilton DJ**, Alexander WS. SOCS5 is expressed in primary B and T lymphoid cells but is dispensable for lymphocyte production and function. *Mol. Cell. Biol.* **24**: 6094-103, 2004. **IF=4.78 (43 citations)**
 96. Krebs DL, Metcalf D, Merson TD, Voss AK, Thomas T, Zhang JG, Rakar S, O'Bryan MK, Willson TA, Viney EM, Mielke LA, Nicola NA, **Hilton DJ**, Alexander WS. Development of hydrocephalus in mice lacking SOCS7. *Proc. Natl. Acad. Sci. U S A* **101**: 15446-51, 2004. **IF=9.67 (37 citations)**
 97. Rico-Bautista E, Greenhalgh CJ, Tollet-Egnell P, **Hilton DJ**, Alexander WS, Norstedt G, Flores-Morales A. Suppressor of cytokine signaling-2 deficiency induces molecular and metabolic changes that partially

- overlap with growth hormone-dependent effects. *Mol. Endocrinol.* **19**: 781-93, 2005. **IF= 4.02 (18 citations)**
98. Metcalf D, Carpinelli MR, Hyland C, Mifsud S, Dirago L, Nicola NA, **Hilton DJ**, Alexander WS. Anomalous megakaryocytopoiesis in mice with mutations in the c-Myb gene. *Blood* **105**: 3480-7, 2005. **IF=10.45 (43 citations)**
99. Greenhalgh CJ, Rico-Bautista E, Lorentzon M, Thaus AL, Morgan PO, Willson TA, Zervoudakis P, Metcalf D, Street I, Nicola NA, Nash AD, Fabri LJ, Norstedt G, Ohlsson C, Flores-Morales A, Alexander WS and **Hilton DJ**. SOCS2 negatively regulates growth hormone action *in vitro* and *in vivo*. *J. Clin. Invest.* **115**: 397-406, 2005. **IF=13.22 (126 citations)**
100. Nicholson SE, Metcalf D, Sprigg NS, Columbus R, Walker F, Silva A, Cary D, Willson TA, Zhang JG, **Hilton DJ**, Alexander WS, Nicola NA. Suppressor of cytokine signaling (SOCS)-5 is a potential negative regulator of epidermal growth factor signaling. *Proc. Natl. Acad. Sci. U S A.* **102**: 2328-33, 2005. **IF=9.67 (50 citations)**
101. Fenner JE, Starr R, Cornish AL, Zhang JG, Metcalf D, Schreiber RD, Sheehan K, **Hilton DJ**, Alexander WS, Hertzog PJ. Suppressor of cytokine signaling 1 regulates the immune response to infection by a unique inhibition of type I interferon activity. *Nat. Immunol.* **7**: 33-9, 2006. **IF=20 (130 citations)**
102. Mansell A, Smith R, Doyle SL, Gray P, Fenner JE, Crack PJ, Nicholson SE, **Hilton DJ**, O'Neill LA, Hertzog PJ. Suppressor of cytokine signaling 1 negatively regulates Toll-like receptor signaling by mediating Mal degradation. *Nat. Immunol.* **7**: 148-55, 2006. **IF=20 (323 citations)**
103. Wormald S, Zhang JG, Krebs DL, Mielke LA, Silver J, Alexander WS, Speed TP, Nicola NA, **Hilton DJ**. The comparative roles of SOCS1 and SOCS3 in the inhibition and desensitization of cytokine signaling. *J. Biol. Chem.* **281**: 11135-43, 2006. **IF=4.57 (68 citations)**
104. Babon JJ, McManus EJ, Yao S, DeSouza DP, Mielke LA, Sprigg NS, Willson TA, **Hilton DJ**, Nicola NA, Baca M, Nicholson SE and Norton RS. The structure of SOCS3 reveals the basis of the extended SH2 domain function and identifies an unstructured insertion that regulates stability. *Mol. Cell* **22**: 205-216, 2006. **IF=14.02 (82 citations)**
105. Majewski IJ, Metcalf D, Mielke LA, Krebs DL, Ellis S, Carpinelli MR, Mifsud S, Di Rago L, Corbin J, Nicola NA, **Hilton DJ** and WS Alexander. A mutation in the translation initiation codon of Gata-1 disrupts megakaryocyte maturation and causes thrombocytopenia. *Proc. Natl. Acad. Sci. U S A* **103**: 14146-51, 2006. **IF=9.67 (14 citations)**
106. Wormald S, **Hilton DJ**, Smyth GK, Speed TP. Proximal genomic localization of STAT1 binding and regulated transcriptional activity. *BMC Genomics* **7**: 254, 2006. **IF= 3.9 (16 citations)**
107. Alexander WS, Viney EM, Zhang JG, Metcalf D, Kauppi M, Hyland CD, Carpinelli MR, Stevenson W, Croker BA, Hilton AA, Ellis S, Selan C, Nandurkar HH, Goodnow CC, Kile BT, Nicola NA, Roberts AW and **Hilton DJ**. Thrombocytopenia and kidney disease in mice with a mutation in the C1galt1 gene. *Proc. Natl. Acad. Sci. USA* **103**: 16442-16447, 2006. **IF=9.67 (36 citations)**
108. El Kasmi KC, Holst J, Coffre M, Mielke L, de Pauw A, Lhocine N, Smith AM, Rutschman R, Kaushal D, Shen Y, Suda T, Donnelly RP, Myers MG Jr, Alexander W, Vignali DA, Watowich SS, Ernst M, **Hilton DJ** and Murray PJ. General nature of the STAT3-activated anti-inflammatory response. *J Immunol.* **177**: 7880-7888, 2006. **IF= 4.92 (108 citations)**
109. Debrincat MA, Zhang JG, Willson TA, Silke J, Connolly LM, Simpson RJ, Alexander WS, Nicola NA, Kile BT and **Hilton DJ**. Ankyrin repeat and SOCS box containing protein ASB-9 targets creatine kinase B for degradation. *J. Biol. Chem.* **282**: 4728-4737, 2007. **IF=4.57 (24 citations)**
110. Silver JD, **Hilton DJ**, Bahlo M and Kile BT. Probabilistic analysis of recessive mutagenesis screen strategies. *Mamm. Genome* **18**: 5-22, 2007. **IF= 3.1 (1 citations)**
111. Malaterre J, Carpinelli M, Ernst M, Alexander W, Cooke M, Sutton S, Dworkin S, Heath JK, Frampton J, McArthur G, Clevers H, **Hilton D**, Mantamadiotis T, Ramsay RG. c-Myb is required for progenitor cell homeostasis in colonic crypts. *Proc. Natl. Acad. Sci. USA* **104**: 3829-34, 2007. **IF=9.67 (49 citations)**

112. Boyle K, Egan P, Rakar S, Willson TA, Wicks IP, Metcalf D, **Hilton DJ**, Nicola NA, Alexander WS, Roberts AW, Robb L. The SOCS box of suppressor of cytokine signaling-3 contributes to the control of G-CSF responsiveness in vivo. *Blood* **110**: 1466-1474, 2007. **IF=10.45 (30 citations)**
113. Greig KT, Antonchuk J, Metcalf D, Morgan PO, Krebs DL, Zhang JG, Hacking DF, Bode L, Robb L, Kranz C, de Graaf C, Bahlo M, Nicola NA, Nutt SL, Freeze HH, Alexander WS, **Hilton DJ**, Kile BT. Agm1/Pgm3-mediated sugar nucleotide synthesis is essential for hematopoiesis and development. *Mol. Cell. Biol.* **27**: 5849-59, 2007. **IF=4.78 (13 citations)**
114. Brender C, Tannahill GM, Jenkins BJ, Fletcher J, Columbus R, Saris CJ, Ernst M, Nicola NA, **Hilton DJ**, Alexander WS, Starr R. Suppressor of cytokine signaling 3 regulates CD8 T-cell proliferation by inhibition of interleukins 6 and 27. *Blood* **110**: 2528-36, 2007. **IF=10.45 (32 citations)**
115. Huyton T, Zhang JG, Luo CS, Lou MZ, **Hilton DJ**, Nicola NA, Garrett TP. An unusual cytokine:Ig-domain interaction revealed in the crystal structure of leukemia inhibitory factor (LIF) in complex with the LIF receptor. *Proc. Natl. Acad. Sci. USA* **104**: 12737-42, 2007. **IF=9.67 (28 citations)**
116. Tucker E, O'Donnell K, Fuchsberger M, Hilton AA, Metcalf D, Greig K, Sims NA, Quinn JM, Alexander WS, **Hilton DJ**, Kile BT, Tarlinton DM, Starr R. A novel mutation in the Nfkb2 gene generates an NF-kappa B2 "super repressor". *J. Immunol.* **179**: 7514-22, 2007. **IF=4.92 (37 citations)**
117. Kiu H, **Hilton DJ**, Nicola NA, Ernst M, Marquez R, Alexander WS, Roberts AW, Mcmanus EJ. Mechanism of crosstalk inhibition of IL-6 signaling in response to LPS and TNFalpha. *Growth Factors* **25**: 319-28, 2007. **IF=3.4 (7 citations)**
118. Croom HA, Izon DJ, Chong MM, Curtis DJ, Roberts AW, Kay TW, **Hilton DJ**, Alexander WS, Starr R. Perturbed thymopoiesis in vitro in the absence of suppressor of cytokine signalling 1 and 3. *Mol. Immunol.* **45**:2888-96, 2008. **IF=4.02 (2 citations)**
119. Croker BA, Mielke LA, Wormald S, Metcalf D, Kiu H, Alexander WS, **Hilton DJ**, Roberts AW. Soc3 maintains the specificity of biological responses to cytokine signals during granulocyte and macrophage differentiation. *Exp. Hematol.* **36**: 786-98, 2008. **IF=2.48 (13 citations)**
120. Majewski IJ, Blewitt ME, de Graaf CA, McManus EJ, Bahlo M, Hilton AA, Hyland CD, Smyth GK, Corbin JE, Metcalf D, Alexander WS*, **Hilton DJ*** (*joint senior authors). Polycomb Repressive Complex 2 (PRC2) Restricts Hematopoietic Stem Cell Activity. *PLoS Biol.* **6**: e93, 2008. **IF=9.35 (42 citations)**
121. Blewitt ME, Gendrel AV, Pang Z, Sparrow DB, Whitelaw N, Craig JM, Apedaile A, **Hilton DJ**, Dunwoodie SL, Brockdorff N, Kay GF, Whitelaw E. SmcHD1, containing a structural-maintenance-of-chromosomes hinge domain, has a critical role in X inactivation. *Nat. Genet.* **40**: 663-669, 2008. **IF=29.35 (115 citations)**
122. Loughran SJ, Kruse EA, Hacking DF, de Graaf CA, Hyland CD, Willson TA, Henley KJ, Ellis S, Voss AK, Metcalf D, **Hilton DJ***, Alexander WS*, Kile BT* (*joint senior authors). The transcription factor Erg is essential for definitive hematopoiesis and the function of adult hematopoietic stem cells. *Nat. Immunol.* **9**: 810-9, 2008. **IF=20 (98 citations)**
123. Kauppi M, Murphy JM, de Graaf CA, Hyland CD, Greig KT, Metcalf D, Hilton AA, Nicola NA, Kile BT, **Hilton DJ**, Alexander WS. Point mutation in the gene encoding p300 suppresses thrombocytopenia in Mpl^{-/-} mice. *Blood* **112**: 3148-53, 2008. **IF=10.45 (22 citations)**
124. Smyth I, Hacking DF, Hilton AA, Mukhamedova N, Meikle PJ, Ellis S, Slattery K, Collinge JE, de Graaf CA, Bahlo M, Sviridov D, Kile BT*, **Hilton DJ*** (*joint senior authors). A mouse model of harlequin ichthyosis delineates a key role for Abca1 in lipid homeostasis. *PLoS Genet.* **4**: e1000192, 2008. **IF=7.52 (35 citations)**
125. Carmichael CL, Majewski IJ, Alexander WS, Metcalf D, **Hilton DJ**, Hewitt CA, Hamish S, Scott HS. Hematopoietic defects in the Ts1Cje mouse model of Down syndrome. *Blood* **113**: 1929-37, 2009. **IF=10.45 (26 citations)**
126. Rank G, Sutton R, Marshall V, Lundie RJ, Caddy J, Romeo T, Fernandez K, McCormack MP, Cooke BM, Foote SJ, Crabb BS, Curtis DJ, **Hilton DJ**, Kile BT, Jane SM. Novel roles for erythroid Ankyrin-1 revealed through an ENU-induced null mutant. *Blood* **113**: 3352-62, 2009. **IF=10.45 (21 citations)**

127. Verhagen AM, Wallace ME, Goradia A, Jones SA, Croom HA, Metcalf D, Collinge JE, Maxwell MJ, Hibbs ML, Alexander WS, **Hilton DJ**, Kile BT, Starr R. A kinase-dead allele of Lyn attenuates autoimmune disease normally associated with Lyn deficiency. *J. Immunol.* **182**: 2020-9, 2009. **IF=4.92 (8 citations)**
128. **Hilton DJ**, Kile BT, Alexander WS. Mutational inhibition of c-Myb or p300 ameliorates treatment-induced thrombocytopenia. *Blood* **113**: 5599-604, 2009. **IF=10.45 (6 citations)**
129. Kiu H, Greenhalgh CJ, Thaus A, **Hilton DJ**, Nicola NA, Alexander WS, Roberts AW. Regulation of multiple cytokine signalling pathways by SOCS3 is independent of SOCS2. *Growth Factors* **27**: 384-93, 2009. **IF=3.4 (6 citations)**
130. Kruse EA, Loughran SJ, Baldwin TM, Josefsson EC, Ellis S, Watson DK, Nurden P, Metcalf D, **Hilton DJ**, Alexander WS, Kile BT. Dual requirement for the ETS transcription factors Fli-1 and Erg in hematopoietic stem cells and the megakaryocyte lineage. *Proc. Natl. Acad. Sci. U S A* **106**: 13814-9, 2009. **IF=9.67 (33 citations)**
131. Sarasin-Filipowicz M, Wang X, Yan M, Duong FH, Poli V, **Hilton DJ**, Zhang DE, Heim MH. Alpha interferon induces long-lasting refractoriness of JAK-STAT signaling in the mouse liver through induction of USP18/UBP43. *Mol. Cell. Biol.* **29**: 4841-51, 2009. **IF=4.78 (69 citations)**
132. Sviridov D, D'Souza W, Murphy A, Mukhamedova N, Chin-Dusting J, Hacking D, **Hilton D**, Kile B and Smyth I (2009). Abca12-a New Regulator of Cellular Lipid Metabolism. *Atheroscler Suppl* **10** (2). **IF=2.3 (0 citations)**
133. Murphy JM, Metcalf D, Young IG, **Hilton DJ**. A convenient method for preparation of an engineered mouse interleukin-3 analog with high solubility and wild-type bioactivity. *Growth Factors* **28**: 104-10, 2010. **IF=3.4 (8 citations)**
134. Shi W, de Graaf CA, Kinkel SA, Achtman AH, Baldwin T, Schofield L, Scott HS, **Hilton DJ**, Smyth GK. Estimating the proportion of microarray probes expressed in an RNA sample. *Nucleic Acids Res.* **38**: 2168-76, 2010. **IF=9.1 (13 citations)**
135. Greig KT, de Graaf CA, Murphy JM, Carpinelli MR, Pang SH, Frampton J, Kile BT, **Hilton DJ**, Nutt SL. Critical roles for c-Myb in lymphoid priming and early B-cell development. *Blood* **115**: 2796-805, 2010. **IF=10.45 (26 citations)**
136. Majewski IJ, Ritchie ME, Phipson B, Corbin J, Pakusch M, Ebert A, Busslinger M, Koseki H, Hu Y, Smyth GK, Alexander WS, **Hilton DJ**, Blewitt ME. Opposing roles of polycomb repressive complexes in hematopoietic stem and progenitor cells. *Blood* **116**: 731-9, 2010. **IF=10.45 (56 citations)**
137. Xu Y, Kershaw NJ, Luo CS, Soo P, Pocock MJ, Czabotar PE, **Hilton DJ**, Nicola NA, Garrett TP, Zhang JG. Crystal structure of the entire ectodomain of GP130: insights into the molecular assembly of the tall cytokine receptor complexes. *J. Biol. Chem.* **285**: 21214-8, 2010. **IF=4.57 (26 citations)**
138. Stevenson WS, Hyland CD, Zhang JG, Morgan PO, Willson TA, Gill A, Hilton AA, Viney EM, Bahlo M, Masters SL, Hennebry S, Richardson SJ, Nicola NA, Metcalf D, **Hilton DJ**, Roberts AW, Alexander WS. Deficiency of 5-hydroxyisourate hydrolase causes hepatomegaly and hepatocellular carcinoma in mice. *Proc. Natl. Acad. Sci. U S A* **107**: 16625-30, 2010. **IF=9.67 (7 citations)**
139. de Graaf CA, Kauppi M, Baldwin T, D Hyland C, Metcalf D, Willson TA, Carpinelli MR, Smyth GK, Alexander WS, Pimanda JE, **Hilton DJ**. Regulation of hematopoietic stem cells by their mature progeny. *Proc. Natl. Acad. Sci. USA* **107**: 21689-94, 2010. **IF=9.67 (27 citations)**
140. Taoudi S, Bee T, Hilton A, Kenzevic K, Scott J, Willson TA, Collin C, Thomas T, Voss AK, Kile BT, Alexander WS, Pimanda JE, **Hilton DJ**. ERG dependence distinguishes developmental control of hematopoietic stem cell maintenance from hematopoietic specification. *Genes Dev.* **25**: 251-62, 2011. **IF=10.8 (33 citations)**
141. Nguyen NY, Maxwell MJ, Ooms LM, Davies EM, Hilton AA, Collinge JE, **Hilton DJ**, Kile BT, Mitchell CA, Hibbs ML, Jane SM, Curtis DJ. An ENU-induced mouse mutant of SHIP1 reveals a critical role of the stem cell isoform for suppression of macrophage activation. *Blood* **117**: 5362-71, 2011. **IF=10.45 (5 citations)**

142. Young MD, Willson TA, Wakefield MJ, Trounson E, **Hilton DJ**, Blewitt ME, Oshlack A, Majewski IJ. ChIP-seq analysis reveals distinct H3K27me3 profiles that correlate with transcriptional activity. *Nucleic Acids Res.* **39**: 7415-27, 2011. **IF=9.1 (61 citations)**
143. Ng AP, Loughran SJ, Metcalf D, Hyland CD, de Graaf CA, Hu Y, Smyth GK, **Hilton DJ**, Kile BT, Alexander WS. Erg is required for self-renewal of hematopoietic stem cells during stress hematopoiesis in mice. *Blood* **118**: 2454-61, 2011. **IF=10.45 (15 citations)**
144. Verhagen AM, de Graaf CA, Baldwin TM, Goradia A, Collinge JE, Kile BT, Metcalf D, Starr R, **Hilton DJ**. Reduced lymphocyte longevity and homeostatic proliferation in lamin B receptor-deficient mice results in profound and progressive lymphopenia. *J. Immunol.* **188**: 122-34, 2012. **IF=4.92 (3 citations)**
145. Kauppi M, Hilton AA, Metcalf D, Ng AP, Hyland CD, Collinge JE, Kile BT, **Hilton DJ**, Alexander WS. Thrombocytopenia and erythrocytosis in mice with a mutation in the gene encoding the hemoglobin minor chain. *Proc. Natl. Acad. Sci. USA* **109**: 576-81, 2012. **IF=9.67 (1 citations)** □
146. Masters SL, Gerlic M, Metcalf D, Preston S, Pellegrini M, O'Donnell JA, McArthur K, Baldwin TM, Chevrier S, Nowell CJ, Cengia LH, Henley KJ, Collinge JE, Kastner DL, Feigenbaum L, **Hilton DJ**, Alexander WS, Kile BT, Croker BA. NLRP1 inflammasome activation induces pyroptosis of hematopoietic progenitor cells. *Immunity* **37**: 1009-23, 2012. **IF=21.56 (64 citations)**
147. Leong HS, Chen K, Hu Y, Lee S, Corbin J, Pakusch M, Murphy JM, Majewski IJ, Smyth GK, Alexander WS, **Hilton DJ**, Blewitt ME. Epigenetic regulator Smc4d1 functions as a tumour suppressor. *Cancer Res.* **73**:1591-9, 2013. **IF=9.32 (5 citations)**
148. Redpath NT, Xu Y, Wilson NJ, Fabri LJ, Baca M, Andrews AE, Braley H, Lu P, Ireland C, Ernst RE, Woods A, Forrest G, An Z, Zaller DM, Strohl WR, Luo CS, Czabotar PE, Garrett TP, **Hilton DJ**, Nash AD, Zhang JG, Nicola NA. Production of a human neutralizing monoclonal antibody and its crystal structure in complex with ectodomain 3 of the interleukin-13 receptor *Biochem J.* **451**: 165-75, 2013. **IF=4.4 (1 citations)**
149. Lee SC, Phipson B, Hyland CD, Leong HS, Allan RS, Lun A, **Hilton DJ**, Nutt SL, Blewitt ME, Smyth GK, Alexander WS, Majewski IJ. Polycomb repressive complex (PRC2) suppresses E μ myc lymphoma. *Blood* **122**: 2654-2663, 2013. **IF=10.45 (6 citations)**
150. Murphy JM, Czabotar PE, Hildebrand JM, Lucet IS, Zhang JG, Alvarez-Diaz S, Lewis R, Lalaoui N, Metcalf D, Webb AI, Young SN, Varghese LN, Tannahill GM, Hatchell EC, Majewski IJ, Okamoto T, Dobson RC, **Hilton DJ**, Babon JJ, Nicola NA, Strasser A, Silke J, Alexander WS. The pseudokinase MLKL mediates necroptosis via a molecular switch mechanism. *Immunity* **39**: 443-53, 2013. **IF=21.56 (98 citations)**
151. Sampurno S, Bijenhof A, Cheasley D, Xu H, Robine S, **Hilton D**, Alexander WS, Pereira L, Mantamadiotis T, Malaterre J and Ramsay RG. The Myb-p300-CREB axis modulates intestine homeostasis, radiosensitivity and tumorigenesis. *Cell Death Dis* **4**: e605, 2013. **IF=5 (2 citations)**
152. Ng AP, Kauppi M, Metcalf D, Hyland CD, Josefsson EC, Lebois M, Zhang JG, Baldwin TM, Di Rago L, **Hilton DJ**, Alexander WS. Mpl expression on megakaryocytes and platelets is dispensable for thrombopoiesis but essential to prevent myeloproliferation. *Proc Natl Acad Sci U S A* **111**: 5884-9, 2014. **IF=9.67 (11 citations)**
153. Potts KS, Sargeant TJ, Markham JF, Shi W, Biben C, Josefsson EC, Whitehead LW, Rogers KL, Liakhovitskaia A, Smyth GK, Kile BT, Medvinsky A, Alexander WS, **Hilton DJ***, Taoudi S*. (*joint senior author). A lineage of diploid platelet-forming cells precedes polyploid megakaryocyte formation in the mouse embryo. *Blood* **124**: 2725-9, 2014. **IF=10.45 (1 citations)**
154. Ng AP, Hu Y, Metcalf D, Hyland CD, Ierino H, Phipson B, Wu D, Baldwin TM, Kauppi M, Kiu H, Di Rago L, **Hilton DJ**, Smyth GK, Alexander WS. Early lineage priming by trisomy of erg leads to myoproliferation in a Down syndrome model. *PLoS Genet* **11**: e1005211, 2015. **IF=7.52**
155. Potts KS, Sargeant TJ, Dawson CA, Josefsson EC, **Hilton DJ**, Alexander WS, Taoudi S. Mouse prenatal platelet-forming lineages share a core transcriptional program but divergent dependence on MPL. *Blood*, 2015 May 20. pii: blood-2014-12-616607 [Epub ahead of print] **IF=10.45**

156. Chen K, Hu J, Moore DL, Liu R, Kessans SA, Breslin K, Lucet IS, Keniry A, Leong HS, Parish CL, **Hilton DJ**, Lemmers RJ, van der Maarel SM, Czabotar PE, Dobson RC, Ritchie ME, Kay GF, Murphy JM, Blewitt ME. Genome-wide binding and mechanistic analyses of Smchd1-mediated epigenetic regulation. *Proc Natl Acad Sci USA* **112**: E3535-44, 2015. **IF=9.67**

Entomology publication

157. Kallies A, **Hilton DJ**. Revision of Cossinae and small Zeuzerinae from Australia (Lepidoptera: Cossidae). *Zootaxa* **3454**: 1-62, 2012.
158. Kristensen NP, **Hilton DJ**, Kallies A, Milla L, Rota J, Wahlberg, N, Wilcox, SA, Glatz, RV, Young, DA, Cocking, G, Edwards T, Gibbs GW, Halsey, M. A new extant family of primitive moths from Kangaroo Island, Australia, and its significance for understanding early Lepidoptera evolution. *Syst Entomol* **40**: 5-16, 2015.

Invited Reviews

159. Gough NM, **Hilton DJ**, Gearing DP, Willson TA, King JA, Nicola NA and Metcalf D. Biochemical characterisation of a murine leukemia inhibitory factor. *Blood Cells* **14**: 431-442, 1988. **(8 citations)**
160. Gough NM, Williams RL, **Hilton DJ**, Pease S, Willson TA, Stahl J, Gearing DP, Nicola NA and Metcalf D. LIF: a molecule with divergent actions on myeloid leukemic cells and embryonic stem cells. *Reprod. Fertil. Dev.* **1**: 281-288, 1989. **IF=2.4 (47 citations)**
161. **Hilton DJ** and Gough NM. Leukemia inhibitory factor: a biological perspective *J. Cell. Biochem.* **46**: 21-26, 1991. **IF=3.26 (166 citations)**
162. **Hilton DJ**. LIF: Lots of interesting functions. *Trends. in Biochem. Sci.* **17**:72-76, 1992. **IF=11.23 (202 citations)**
163. Longmore GD, Watowich SS, **Hilton DJ** and Lodish HF. The erythropoietin receptor and disease. *J.Cell. Biol.* **123**: 1305-8, 1993. **IF=9.83 (25 citations)**
164. Nicholson SE and **Hilton DJ**. The SOCS proteins: a new family of negative regulators of signal transduction. *J. Leukocyte. Biol.* **63**: 665-668, 1998. **IF=4.29 (93 citations)**
165. Nicola NA and **Hilton DJ**. General Classes and Functions of Four-Helical Bundle Cytokines. *Adv. Protein. Chem.* **52**: 1-65, 1999. **(3 citations)**
166. Starr R and **Hilton DJ**. Molecules in focus - SOCS: Suppressors of Cytokine Signalling. *Int. J. Biochem. Cell Biol.* **30**: 1081-1085, 1998. **IF=4.05 (70 citations)**
167. Starr R and **Hilton DJ**. Negative Regulation of cytokine signal transduction pathways. *Bioessays* **21**: 47-52, 1999. **IF=4.73 (198 citations)**
168. **Hilton DJ**. Negative Regulators of Cytokine Signal Transduction. *Cell. Mol. Life Sci.* **55**: 1568-1577, 1999. **IF=5.81 (165 citations)**
169. Nash A, Kurek J and **Hilton DJ**. Cytokines: From the Laboratory to the Clinic. *Drug Dev. Res.* **46**: 197-205, 1999. **IF=.77 (5 citations)**
170. Krebs D and **Hilton DJ**. SOCS: Physiological suppressors of cytokine signalling. *J. Cell Sci.* **113**: 2813-9819, 2000. **IF=5.43 (326 citations)**
171. Greenhalgh C and **Hilton DJ**. The regulation of cytokine signalling by the SOCS proteins. *Immunologist* **8**: 45-47, 2000. **(1 citations)**
172. Gadina M, **Hilton DJ**, Johnston JA, Morinobu A, Lighvani A, Zhou Y, Visconti R and O'Shea JJ. Signaling by Type I and II cytokine receptors: ten years after. *Curr. Opin. Immunol.* **13**: 363-373, 2001. **IF=7.48 (127 citations)**
173. Greenhalgh CJ and **Hilton DJ**. Negative regulation of cytokine signaling. *J. Leuk. Biol.* **70**: 348-56, 2001. **IF=4.29 (150 citations)**
174. Krebs DL and **Hilton DJ**. SOCS proteins: negative regulators of cytokine signaling. *Stem Cells* **19**: 378-387, 2001. **IF=6.52 (429 citations)**

175. Kile BT, Schulman BA, Alexander WS, Nicola NA, Martine HME and **Hilton DJ**. The SOCS box: a tale of destruction and degradation. *Trends. in Biochem. Sci.* **27**: 235-241, 2002. **IF=11.23 (264 citations)**
176. Greenhalgh CJ, Miller ME, **Hilton DJ** and Lund PK. Suppressors of cytokine signaling: Relevance to gastrointestinal function and disease. *Gastroenterology* **123**: 2064-81, 2002. **IF=16.72 (52 citations)**
177. Krebs DL and **Hilton DJ**. A new role for SOCS in insulin action. Suppressor of cytokine signaling. *Sci STKE*. **2003**: PE6, 2003. **IF=6.28 (3 citations)**
178. Greig KT and **Hilton DJ**. Toward an understanding of human gene function. *Today's Life Sciences* **15**: 38-41, 2003.
179. Wormald S and **Hilton DJ**. Inhibitors of cytokine signal transduction. *J. Biol. Chem.* **279**: 821-4, 2004. **IF=4.57 (279 citations)**
180. Alexander WS and **Hilton DJ**. The role of suppressors of cytokine signaling (SOCS) proteins in regulation of the immune response. *Ann. Rev. Immunol.* **22**: 503-29, 2004. **IF=39.32 (455 citations)**
181. Kile BT and **Hilton DJ**. The art and design of genetic screens: mouse. *Nat. Rev. Genet.* **6**: 557-67, 2005. **IF=36.98 (43 citations)**
182. Wormald S and **Hilton DJ**. The negative regulatory roles of suppressor of cytokine signaling proteins in myeloid signaling pathways. *Curr. Opin. Hematol.* **14**: 9-15, 2007. **IF=3.97 (15 citations)**
183. Linossi EM, Babon JJ, **Hilton DJ**, Nicholson SE. Suppression of cytokine signaling: The SOCS perspective. *Cytokine Growth Factor Rev.* **24**: 241-8, 2013. **IF=5.35 (25 citations)**

Research Book

184. Garland J, Quesenberry P, **Hilton DJ** (editors). Colony Stimulating Factors: Molecular and Cellular Biology. Marcel Dekker, New York, 1997.

Book Chapters

185. Metcalf D, Gough NM, Stahl J, **Hilton DJ** and Nicola NA. Leukemia Inhibitory Factor In *Human Cytokines*. (eds. Aggarwal BB and Gutterman JU), Blackwell Scientific Publications, Boston, MA, 1990.
186. **Hilton DJ** and Watowich SS. The erythropoietin receptor. In *Guide Book to Cytokines and Their Receptors* (ed. Nicola NA), Oxford University Press, London, 1994.
187. **Hilton DJ**. Leukaemia Inhibitory Factor. In *Guide Book to Cytokines and Their Receptors*. (ed. Nicola NA), Oxford University Press, London, 1994.
188. **Hilton DJ**. Cytokine receptors; an overview. In *Guide Book to Cytokines and Their Receptors* (ed. Nicola NA), Oxford University Press, London, 1994.
189. Nicola NA and **Hilton DJ**. Leukaemia inhibitory factor and its receptor. In *Growth Factors and Cytokines in Health and Disease* (eds. LeRoith D and Bondy C), JAI Press Inc., Greenwich, Connecticut, 1997.
190. **Hilton DJ**. Haemopoietic Receptors. In *Colony Stimulating Factors* (eds. Garland JM, Quesenberry P, **Hilton DJ**), Marcel Dekker, New York, 1997.
191. **Hilton DJ** and Gough NM. Leukaemia Inhibitory Factor. In *Cytokines; A Handbook of Immunopharmacology* (ed. Mire-Sluis A), Academic Press, New York, 1998.
192. Murphy JM, Tannahill GM, **Hilton DJ** and Greenhalgh CJ. The negative regulation of JAK/STAT signaling. In: *Handbook of Cell Signaling*, 2nd edition (eds. Bradshaw RA, Dennis EA). Elsevier Inc. Chapter 64, pages 467-480, 2009.

Other Publications

193. **Hilton DJ**. A Literary Dinosaur - Review of The Cytokine Handbook (3rd edition). *Trends. Biochem. Sci.* **24**: 461, 1999. (Book Review)
194. Steensma DP, Pardanani A, Stevenson WS, Hoyt R, Kiu H, Grigg AP, Szer J, Juneja S, **Hilton DJ**, Alexander WS, Roberts AW. More on Myb in myelofibrosis: molecular analyses of MYB and EP300 in 55 patients with myeloproliferative disorders. *Blood* **107**:1733-5, 2006. Letter-author reply.

195. **Hilton D.** Australian science needs more female fellows. *497*: 7, 2013.
196. **Hilton DJ**, Nicola NA, Alexander WS, Roberts WA, Dunn AR. Donald Metcalf (1929-2014) Obituary. *Cell* **160**: 361-2, 2015.
197. **Hilton D.** Donald Metcalf (1929-2014). *Nature* **517**: 554, 2005.
198. Cunningham AL, Anderson T, Bennett CC, Crabb BS, Goodier G, **Hilton D**, Koff E, Trapani J. Why Australia needs a Medical Research Future Fund. *The Medical Journal of Australia* **202**: 123-4, 2015.
199. **Hilton D.** Practical policies can combat gender inequality. *Nature* **523**: 7, 2015.
200. Nicola NA, Alexander WS, Hilton DJ, **Ng AP**. In memoriam: Donald Metcalf (1929-2014) – A historical perspective of his contributions to hematology. *Exp Hematol* **43**: 425-7, 2015.

Patents

201. **Leukaemia Inhibitory Factor.** Applicant: AMRAD. Inventors: David Paul Gearing, Nicholas Martin Gough, DOUGLAS JAMES HILTON, Julie Ann King, Donald Metcalf, Edouard Collins Nice, Nicos Anthony Nicola, Richard John Simpson and Tracy Ann Willson. International application PCT/AU88/0093 (filed 31/03/1988). Australian Patent No. 609128 (expired), Israel 85961 (expired), Japan 2682858 (expired), South Korea 121322 (expired), South Korea 121324 (expired), USA 5187077 (abandoned), USA 5427925 (abandoned), USA 5443825 (granted 1995), USA 5750654 (granted 1998), USA 6261548 (abandoned), Canada 1341581 (granted), South Africa 88/2277 (expired), Singapore 336/1995 (expired), EUROPE 0285448 entered into Belgium, France, Italy, Luxembourg, United Kingdom, Sweden, Austria, Switzerland, The Netherlands, Greece, Spain, Portugal, Germany, Denmark, Finland, Hungary, Norway (all expired).
202. **In Vitro Propagation of Embryonic Stem Cells.** Applicant: AMRAD. Inventors: Nicholas Martin Gough, DOUGLAS JAMES HILTON and Robert Lindsay Williams. International application PCT/AU89/0030 (filed 03/08/1989), Canada 1341469 (granted); the following are expired: Australia 623922, Japan 2740320, EUROPE 0380646 entered into Germany, Switzerland, Austria, Sweden, Belgium, The Netherlands, Luxembourg, Italy, United Kingdom, France, Denmark 017091; the following are abandoned: Hong Kong 98102359.4, USA 5166065, USA 7186883.
203. **A Novel Haemopoietin Receptor (IL-11R).** Applicant: WEHI. Inventor: DOUGLAS JAMES HILTON. International application PCT/AU95/00578 (filed 5/09/95), Australia 690743, EUROPE 0804576 (Spain, Italy, France, Germany, United Kingdom), USA 7476732, USA 7002000, USA 6274708, Hong Kong 1004411, Canada 2197873, Japan 3949715 (all abandoned).
204. **A Novel Haemopoietin Receptor and Genetic Sequences Encoding Same (NR2).** Applicant: WEHI. Inventors: Warren Alexander, Timothy Gainsford, DOUGLAS JAMES HILTON, Donald Metcalf, Ashley Ng, Nicos Nicola and Tracy Willson. International application PCT/AU96/00607 (filed 26/09/96), Australia 767972, Australia 69805/96, USA 6414128, USA 10/014156, Japan 513006/97.
205. **A Novel Haemopoietin Receptor and Genetic Sequences Encoding Same - II (NR4).** Applicant: AMRAD. Inventors: DOUGLAS JAMES HILTON, Donald Metcalf, Nicos Nicola, Tracy Willson, and Jian-Guo Zhang. International application PCT/AU96/00668 (filed 23/10/96). National Phase entered in Australia 718899 (granted 3/8/2000), Europe 0907730 (granted), US 6911530 (granted); USA 10/036568 (abandoned); USA 09/051843 (abandoned), Japan 516141/97 (filed 23/10/96), Canada 2238080 (granted).
206. **A Novel Haemopoietin Receptor and Genetic Sequences Encoding Same (NR6).** Applicant: AMRAD. Inventors: Warren Alexander, Lou Fabri, Alison Farley, DOUGLAS JAMES HILTON, Y. Kikuchi, T. Kojima, M. Maeda, Andrew Nash, Nicos Anthony Nicola, Steven Rakar, Tracy Willson and Jian-Guo Zhang. International application PCT/GB97/02479 (filed 11/9/97), Australia 731968, Europe 97919143.4, USA 08/928720, 09/037657, 09/549677, Japan 513389/98 (all abandoned).
207. **Therapeutic and Diagnostic Agents capable of modulating cellular responsiveness to cytokines (SOCS).** Inventors: Robyn Starr, DOUGLAS JAMES HILTON, Warren Alexander, Donald Metcalf, Sandra Nicholson, Rachael Richardson, Elizabeth Viney, Tracy Willson, and Nicos Nicola. International application PCT/AU97/00729 (filed 31/10/1997), USA 6905842 (granted); the following are abandoned:

USA 6323317, 7279557, 7049418, 11/219199, 11/977132; Australia 735735, 779095, 2003203775, 2006252108; Norway 19992116, China 200610135922.9, 97180920.8; Europe 08006605.3, 0948522; United Kingdom 9905020.5; Japan 520867/98, 2008-237273; Canada 2270171; Korea 7003904, 0719080; Hong Kong 99105114.2.

208. **Therapeutic Molecules (IL-13BP).** Applicant: WEHI. Inventors: Nicos Anthony Nicola, DOUGLAS JAMES HILTON, Jian-Guo Zhang and Richard John Simpson. International application PCT/AU97/00591 (filed 10/09/1997), USA 08/926862 (abandoned).
209. **A New Cytokine Family and Uses Thereof (Novel Molecules and Uses Thereof).** Applicant: AMRAD. Inventors: Christine Biben, Louis Fabri, Richard Harvey, DOUGLAS JAMES HILTON, Maria Lah, Andrew Nash and Edouard Stanley. International application PCT/AU98/00078 (filed 11/02/1998), Australia 741708 (abandoned), USA Application 09/022115 (abandoned).
210. **SOCS-Box Containing Peptides, Novel Proteins, Their Derivatives, Homologues and Analogues and Uses Thereof.** Applicant: WEHI. Inventors: Warren Alexander, Manuel Baca, DOUGLAS JAMES HILTON, Donald Metcalf, Sandra Nicholson, Nicos Nicola, Tracy Willson, Richard Simpson, Alison Farley and Jian-Guo Zhang. International application PCT/AU99/01134 (filed 21/12/99), USA 7078174 (abandoned).
211. **Methods of Regulating Cytokine Signalling (A method and agents useful for same).** Applicant: WEHI. Inventors: Sandra Nicholson, Manuel Baca, DOUGLAS J. HILTON, Nicos A. Nicola, Jian-Guo Zhang, Louis Fabri, Andrew Nash. International application PCT/AU01/00263 (filed 9/3/2001), Australia 2001240346, 2006252056, USA 7256007 (abandoned).
212. **A biologically active complex of NR6 and Cardiotrophin-like-cytokine.** Applicant: AMRAD. Inventors: Andrew Nash, Kim Jachno, Louis Fabri, Yasuhiko Nakata, Masakazu Hasegawa, Kate Reid, DOUGLAS HILTON, Perry Bartlett. International application PCT/AU00/01216 (filed 6/10/2000), USA 10/110172, 11/704086, Australia 2000078908 (all abandoned).
213. **Therapeutic and Diagnostic Molecules.** Applicant: WEHI. Inventors: DOUGLAS HILTON, Nicos Nicola, Warren Alexander, Robyn Starr, Sandra Nicholson, Tracey Willson, Elizabeth Viney, Stephen Rakar, Danielle Krebs, Manuel Baca, Rachel Uren. International application PCT/AU02/01353 (filed 4/10/2002, expired).
214. **A method and agents useful for same (SOCS-2 Motif).** Applicant: WEHI. Inventors: Christopher John Greenhalgh, Louis Jerry Fabri, Anne Louise Thaus, Jian-Guo Zhang, Phillip Owen Morgan, Warren Alexander Scott, Manuel Baca, Andrew Donald Nash, DOUGLAS JAMES HILTON, Ian Street. International application PCT/AU03/010207 (filed 13/08/2003) Provisional Australian 2002950745 (expired).
215. **Active compounds and uses thereof (SOCS-3/GCSF).** Applicant: WEHI. Inventors: Warren Scott Alexander, Ben Croker, Andrew Roberts, DOUGLAS JAMES HILTON, Nicos Anthony Nicola, Donald Metcalf. International application PCT/AU2004/000749 (filed 4/6/2004), USA 10/559711, Europe 04736034.2 (all abandoned).
216. **Therapeutic compositions (SOCS-3/IL-6).** Applicant: WEHI. Inventors: Ben Croker and DOUGLAS JAMES HILTON. Provisional Australia 2003900644 (filed 13/2/03, expired) and 2003902516 (filed 13/2/03, expired).
217. **Monoclonal antibody against interleukin-13 receptor alpha 1.** Applicant: AMRAD. Inventors: Felicity Dunlop, Louis Jerry Fabri, Andrew Donald Nash, Manuel Baca, DOUGLAS JAMES HILTON, and Nicos Anthony Nicola. International application PCT/AU03/00352 (filed 21/3/03), USA 7785590 (granted), Australia 20033212102 (granted), Canada 2480059 (pending), Europe 03707913.4 (pending), Japan 2006504623 (pending).
218. **Target for therapeutic intervention (Drug Targets and Methods of Determining Same).** Applicant: WEHI. Inventors: DOUGLAS JAMES HILTON, Warren Alexander, Marina Carpinelli. International application PCT/AU2004/001167 (filed 27/8/04), USA 10/569995, Europe 04761204.9, Australia 2004267876, Australia 2008264212 (all abandoned).
219. **Methods and agents for regulating cellular interactions and development.** Applicant: WEHI. Inventors: DOUGLAS JAMES HILTON, Benjamin Kile, Kylie Greig, Warren Alexander, Donald Metcalf,

Jennifer Antonchuk, Jian-Guo Zhang, Danielle Krebs, Phillip Morgan. International application PCT/AU2006/000298 (filed 7/3/06), Australia 2005901076 (filed 7/3/05, abandoned).

220. **Agents for modulating cellular activity, animal models and methods relating thereto.** Applicant: WEHI. Inventors: DOUGLAS JAMES HILTON, William Stevenson, Andrew Roberts, Warren Alexander, Adrienne Hilton. International application PCT/AU2006/000456 (filed 6/4/06, lapsed), Australia 2005901698 (filed 6/4/05, expired).
221. **Hematopoiesis and regulation thereof.** Applicant: WEHI. Inventors: DOUGLAS JAMES HILTON, Warren Alexander, Benjamin Kile, Stephen Loughran. International application PCT/AU2007/000645 (filed 14/5/07,) Australia 2006902556 (filed 12/5/06, expired).
222. **Methods of modulating cellular activity and compositions therefore.** Applicant: WEHI. Inventors: DOUGLAS JAMES HILTON, Warren Alexander, Ian Majewski, Marnie Blewitt, Carolyn de Graaf, Melanie Bahlo, Edward McManus. International application PCT/AU2007/001243 (filed 28/8/07), Australia 61/091549 (filed 28/8/06, expired).
223. **Therapeutic protocol.** Applicant: WEHI. Inventor: DOUGLAS JAMES HILTON, Warren Alexander, Adrienne Hilton, James Murphy. International application PCT/AU2008/001482 (filed 7/10/2008), USA 30354879 (filed 9/10/07, pending).
224. **Methods of modulating cellular activity and compositions therefor.** Applicant: WEHI. Inventors: DOUGLAS HILTON, Warren Alexander, James Murphy, Ian Majewski, Esme Hatchell, Gillian Tannahill. International application PCT/AU2009/001029 (filed 25/08/2009, pending).

Survey of Employment Conditions

AAMRI Members – Modern Award 4-yearly Review

As you will be aware, the award coverage of MRIs is currently being considered by the Fair Work Commission as part of the 4-yearly Modern Award Review.

In preparation for our submissions to the Commission, we are seeking information from members regarding the kinds of employees currently employed by MRI members, in order to clearly set out for the Commission how employees will be affected by our application.

Please note that all responses will be provided to our lawyers, K&L Gates, for the purposes of the upcoming hearings in the Fair Work Commission. Because of this they will be kept confidential and subject to legal professional privilege.

Instructions

Please answer the questions below keeping in mind the following:

- » Staff who are casual and part time employees should be counted on a head count basis, not FTE
- » Staff who are employed to perform work overseas should be included in your count
- » Staff should only be included **if they are employed by your MRI**. As such, staff members who have been seconded from a university or hospital, but are not employed by your MRI, should not be counted. However, staff members who are employed by your MRI **as well as** a university or hospital should be included.

Research Employees

Research employees in this survey means employees who conduct medical research duties and hold a 3, 4 or 5 year degree that is required for the adequate discharge of those research duties.

It **includes** Research Higher Degree students if they hold a 3, 4 or 5 degree and are **employed** (e.g. as casual research staff) to undertake medical research duties that require that degree.

It **includes** research employees with a medical/dental qualification who also perform clinical duties.

It **only includes** nurses and other health professionals (e.g. physiotherapist, genetic counsellor – see Qu 4.10 for common health professionals) who engage in medical research duties **if** those research duties are over 50% of their position at the MRI.

1. How many research employees does your MRI employ? _____
2. Please advise into which of the following categories your research employees fit. (Note, categories 1-3 are mutually exclusive, and should add up to the total at Qu 1. Research employees who fit into category 4 or 5 will be counted again in addition to being counted in category 1, 2 or 3.):

1	Number of research employees with a degree in science (undergrad or 3+-year post-grad degree) from an Australian, NZ or UK university <i>[NB Medical, dental, nurse and health professional degrees are not considered to be science degrees]</i>	
2	Number of research employees who don't fit the above category, but with a degree in science from a university outside of Australia, NZ or UK	

3	Number of research employees who don't fit either of the above categories, i.e. with a degree (from any jurisdiction) which is not in science	
4	Number of research employees who hold medical or dental qualifications and also perform clinical duties (whether for the MRI or for another employer) <i>[Do not include research employees with medical/dental qualifications who are not practising clinicians/dentists]</i>	
5	Number of research employees who also perform health professional work (and with >50% of their position being research duties) <i>[Do not include nurses here]</i>	

Non-Research Positions

3. How many employees who **do not** meet the definition of research employee above does your MRI employ? _____
4. Please indicate in the following table, for each category, how many employees your MRI currently employs (numbers in Qus 4 & 5 should add up to the total at Qu 3):

Category	Position	Number of Employees
1	Animal technician	
2	Clerical/administrative employees (including typing, calculating, invoicing, billing, charging, checking, receiving and answering calls, cash handling, operating a telephone switchboard and attending a reception desk)	
3	Management (e.g. grant & research managers), human resources, finance, fundraising, public relations, legal, procurement and communications staff	
4	IT professional	
5	Medical practitioner (who principally performs medical practitioner duties)	
6	Nurse (who principally performs nursing duties >50%)	
7	Senior executives e.g. Directors, COOs, CFOs, CEOs, etc. (who do not undertake research duties)	
8	Building and equipment maintenance staff, Kitchen staff, Dock/stores staff, Cleaning staff, Security staff, etc.	
9	Laboratory assistants, laboratory technicians and technical officers (conducting medical research without a degree and/or assisting with medical research duties, maintenance of apparatus or reporting results)	
10	Health professionals (who principally perform health professional duties), including the following:	

DOUGLAS HILTON - APPENDIX 2

	Aboriginal health worker	Nuclear medicine technologist	
	Biomedical engineer/ technologist	Occupational therapist	
	Cardiac technologist	Orthoptist	
	Clinical optometrist	Pharmacist	
	Genetic counsellor	Physiotherapist	
	Health information manager	Psychologist	
	Medical laboratory technician	Radiation therapy technologist	
	Medical librarian	Research technologist	
	Medical scientist	Social worker	
		Speech therapist	

5. If there are any additional categories of employees at your MRI, please list those positions and indicate the number of employees employed in those positions (add additional rows if required).

Position	Number of Employees

6. Please provide position descriptions used for any "other" employees indicated at question 5 above.