

## **REPORT OF THE SCIENTIFIC COUNCIL ON ITS FORTY-EIGHTH SESSION**

### **INTRODUCTION**

1. The Forty-eighth Session of the Scientific Council (SC) of the International Agency for Research on Cancer (IARC) was opened by Professor Ian Frazer (Chairperson of the Scientific Council), at 09:00 on Wednesday 1 February 2012. He welcomed the participants, including the nine new members of the Scientific Council: Paul W. Dickman (Sweden); Luca Gianni (Italy); Inger Gram (Norway); Murat Gültekin (Turkey) (*unable to attend*); In-Hoo Kim (Republic of Korea); Deirdre Murray (Ireland); Thangarajan Rajkumar (India); Sergei Tjulandin (Russian Federation) and Cornelia Ulrich (Germany).

2. He also welcomed Professor Pekka Puska (Chairperson, Governing Council) (present only on 2 February 2012), Mr Cary Adams (UICC Representative – Observer), Dr Andreas Ullrich (WHO Representative) and Professor Alain Puisieux (Director of Research at the Centre Léon Bérard – Observer).

3. Apologies for absence were received from Dr Mark Palmer (Vice-Chairperson of the Governing Council, UK) and Murat Gültekin (Turkey).

### **DECLARATION OF INTERESTS**

4. Declarations were summarized by the Secretariat and made available for consultation by all Scientific Council members during the meeting. Please refer to the Annex at the end of this Report.

### **ELECTION OF RAPPORTEUR**

5. Dr Giulio Superti-Furga was elected Rapporteur.

### **ADOPTION OF THE AGENDA** (Document SC/48/1)

6. As requested by the Scientific Council at its last session in 2011, there will be more emphasis on discussion of scientific topics at this session. The provisional agenda reflects these changes.

7. **The agenda was adopted.**

**PRESENTATION OF STANDARD REPORTS: THE IARC BIENNIAL REPORT 2010–2011**  
(Document SC/48/2)

8. The Director presented the IARC Biennial Report 2010–2011 and its scientific highlights.
9. The following points were raised in discussion of the Biennial report:
  - IARC interactions with the other agencies in addition to UICC;
  - Challenges for the cancer registry in relation to support to “hubs”;
  - Next generation sequencing and other new technology usage across the Agency;
  - Cervical cancer incidence and the age of first sexual intercourse;
  - Epigenetic studies;
  - The importance of agricultural cohorts studies;
  - IARC involvement in the cervical cancer prevention programme through screening and vaccination;
  - The UN High-level Meeting on Noncommunicable Diseases (NCDs);
  - Education and training.
10. The Scientific Council congratulated the Director and his staff on the IARC Biennial Report 2010–2011. The Scientific Council further congratulated the Director on his excellent performance over the last four years in achieving a substantial restructuring of the Agency with demonstrable improvement in research performance and staff morale.

**PRESENTATION OF STANDARD REPORTS: REPORT OF THE MEETING OF THE 53<sup>rd</sup> SESSION OF THE GOVERNING COUNCIL** (Document SC/48/3)

11. The Director tabled the Report and asked for any comments in advance of the meeting. The full Minutes of the Governing Council meeting (GC/53/Min.1–3) were available on the IARC Governance web site (<http://governance.iarc.fr/GC/GC53/index.php>).
12. At the 53<sup>rd</sup> Governing Council, Turkey was admitted as the 22<sup>nd</sup> IARC Participating State.
13. Regarding future infrastructure projects, recent analysis suggests the option of a new building, as opposed to renovation of the tower, is a far better option but the financial implications need resolving. Input from the Scientific Council about how the planned configuration could be best matched to the IARC Medium-Term Strategy will be required when the project has developed further.
14. The Scientific Council noted the Report of the 53<sup>rd</sup> Governing Council.

**PRESENTATION OF STANDARD REPORTS: DIRECTOR'S UPDATE FROM THE 47<sup>th</sup> SESSION OF THE SCIENTIFIC COUNCIL AND DISCUSSION** (Document SC/48/4)

15. The Director tabled the Report and asked for any comments in advance of the meeting.
16. Update on KPIs: Additional information is now collected on access to IARC online publications and resources. The 'Urchin 7' software has been applied to the main IARC web site and to a number of sub-sites such that data can be presented to the Governing Council. In addition, in respect to measures of collaboration the use of different software tools ('sci<sup>2</sup>' and 'scimaps') is being tested to produce maps of the Agency's collaborative networks based on data from publications and other records of research collaborations.
17. In July the Agency organized in Lyon a meeting of major stakeholders which resulted in a summary statement supporting the creation of a number of regional "hubs" of excellence in cancer registration. The Global Initiative on Cancer Registry Development was launched at the World Cancer Leaders' Summit in Dublin in November 2011. Efforts are now underway to find the resources to finance this global initiative.
18. The IARC Biobank web site has been launched with a list of the collections available at the Agency and the point of contact for each collection. An access policy is being developed to manage requests for collaborative studies using these collections. Documents on guidelines and standard SOPs for pre-analytical sample processing and sample management are included in the resources accessible on the web site. The cost recovery programme to support activities for a sustainable biobank was developed and is being implemented; this includes the introduction of revised costs for sample management and processing which are also being incorporated in the budgets of research grant applications.
19. Regarding biostatistics, no further resources have been available to appoint an additional senior statistician external to the Biostatistics Group (BST) structure given the budget constraints. A budget has been assigned to BST for 2012–2013 to permit further activities in biostatistics across the Agency.
20. The Scientific Council noted the Director's update from the 47<sup>th</sup> Scientific Council.

**PRESENTATION OF STANDARD REPORTS: BIENNIAL REPORT OF THE OCCUPATIONAL HEALTH AND SAFETY COMMITTEE (OHSC), 2010–2011** (document SC/48/5)

21. The OHSC Biennial Report (2010–2011) was presented by the Chair of the Committee, Dr Robert Baan. He mentioned that the new OHSC web site, that had been redesigned to improve visibility and accessibility of the information and to make it more user-friendly, was launched on 5 October 2011 (<http://ohsc.iarc.fr/>).
22. The Scientific Council thanked Dr Baan and noted the Report.

**UPDATE ON RESEARCH PROGRAMME OF GENETIC CANCER SUSCEPTIBILITY (GCS)**  
(document SC/48/6)

23. The Genetic Cancer Susceptibility Group (GCS) was reviewed in 2010 as part of the Section of Genetics (GEN). As the GCS Group Head had been appointed immediately prior to the review, the Review Panel recommended that the GCS Group Head, Dr James McKay, provide the Scientific Council with an update of the GCS scientific programme in 2011.

24. Dr James McKay presented the medium-term plans of his Group as documented in his report.

25. The Scientific Council noted and congratulated Dr McKay on the progress over the last year toward the future plans of the Group, and thanked Dr McKay for his presentation.

**CURRENT SCIENTIFIC INITIATIVES** (document SC/48/7)

26. All scientific Sections, except the Section of Cancer Information (CIN) and the Section of Environment and Radiation (ENV) which were the subject of a separate Review by a dedicated Review Panel in the days preceding the 48<sup>th</sup> Scientific Council session, have been requested to make a presentation on their current scientific initiatives. The seven Sections presented one or two areas and the input by the Scientific Council is summarized below. The points deemed significant, highlighted below for each Section, were subject to discussion and responses were provided at that time by Agency scientists or will be considered further by them during development of the projects.

***Section of Mechanisms of Carcinogenesis (MCA)***

The following points raised in discussion were deemed to be significant:

- The use of functional studies including animal and single cell work to drive the clinical research;
- Use of appropriate control and target tissues;
- Focus of the programme.

***Section of Molecular Pathology (MPA)***

The following points raised in discussion were deemed to be significant:

- A need to consider the capacity of this Section as currently staffed to meet the needs of the Agency.

### ***Section of Infections (INF)***

The following points raised in discussion were deemed to be significant:

- Limitations of using tonsil tissue as a control and the desirability of ruling out the possibility that HPV was the cause of the tonsillectomy;
- Longitudinal vs case-control design;
- The issue of additional markers to demonstrate causality in the presence of HPV;
- Ethical implications of collection of samples of tonsils particularly in children.

### ***Section of Nutrition and Metabolism (NME)***

The following points raised in discussion were deemed to be significant:

- Definition of dietary factors and biomarkers that may have to do with cancer initiation as opposed to later stages;
- Other causal factors including drinking water quality, nutritional status and menopausal status;
- Collection of specimens;
- Desirability of follow-up of incident cases;
- Study of groups with more extreme nutritional deficiencies;
- Concern at the use of biomarkers in a case-control study;
- Attention to the intra-individual variability of metabolomic markers.

### ***Section of Genetics (GEN)***

The following points raised in discussion were deemed to be significant:

- Incorporate genetics and other investigations across a wide range of Agency projects. Look at it more in a matrix manner. Materials collected around the Agency should be applied to a range of technologies;
- The need to look at stroma, endothelial cells, etc.;
- World-class genetics/genome sequencing equipment will need updating regularly.

### ***Section of Early Detection and Prevention (EDP)***

The following points raised in discussion were deemed to be significant:

- Antibiotic treatment and reduction in stomach cancer incidence;
- Age at infection as it impacts on stomach cancer;
- Appropriateness of various surveillance programmes for prevention of bowel cancer on a global basis;
- Advisability of creating an expert panel to review the protocols for bowel and stomach cancer prevention.

### ***Section of IARC Monographs (IMO)***

The following points raised in discussion were deemed to be significant:

- The Handbooks are a valued and distinct part of the IARC publication repertoire and the Director is encouraged to seek additional resources to develop this series further;
- The practicality of regular updates of the Monographs and the Handbooks, e.g. using web based technologies;
- Desirability of consideration of the economic impact of cancer prevention and possible production of a separate Handbook on this topic;
- Feasibility of preparing information packages targeted at a lay audience.

#### *General comment*

27. The Scientific Council was very appreciative of the thought that had gone into the preparation of presentations. The Scientific Council noted that the questions posed by the various Sections were challenging and gave rise to constructive discussion.

28. The Scientific Council encouraged the Section Heads and the Director to further explore the possibilities for inter-Section collaborations.

29. Feedback from the Scientific Council on the value of the session was entirely positive.

### **OPEN SESSION ON SCIENTIFIC TOPICS OF IMPORTANCE TO IARC (document SC/48/8)**

#### **Topic 1: Next Generation Sequencing (NGS)**

30. Dr James McKay (Head, GCS) introduced the document. The advice from the Scientific Council on "Next Generation Sequencing" is summarized below.

31. Discussion points included:

- Use of NGS technology to identify somatic profiles or signature mutations linked to environmental exposures (description of potential sequenced based biomarkers, exposure classification);
- Use of NGS in the investigation of the contribution to carcinogenesis of infectious agents (known and novel), with particular focus on low- and medium-resource countries;
- IARC's contribution to the International Cancer Genome Consortium (ICGC) initiatives. Potential for focus of IARC on cancer types specific to low- and medium-resource countries, and/or determining if genes identified in ICGC in high-resource situations are applicable to lower/medium resource countries with their etiological differences;
- The use of NGS in the development of translational studies through the discovery and validation of genetic and epigenetic biomarkers of tumorigenesis and environmental exposures;
- Application of IARC's biorepositories using NGS, in particular focused studies (few genes, many samples);

- Ethical issues: are databases so structured that they can be used securely?
- IARC as a repository of confirmatory samples for cancer genomic studies;
- Need to plan for future technology.

## **Topic 2: Rare and emerging cancers**

32. Dr Paul Brennan (Head, GEN) introduced the document. The advice from the Scientific Council on "Rare and emerging cancers" is summarized below.

33. Discussion points included:

- How to define "rare";
- Acceptable name for this kind of activity;
- Role of the Agency in this area of research.

## **PRESENTATION OF POSTERS BY YOUNG SCIENTISTS**

34. As introduced at the last Session in 2011, young scientists have prepared posters to present to Scientific Council members in a less formal setting.

35. This event was highly appreciated by the Council members who got a chance to interact with the young scientists working at IARC.

## **SCIENTIFIC COUNCIL MEMBERSHIP OF SECTION REVIEW PANEL IN 2013**

36. The Scientific Council discussed the Sections to be reviewed in 2013: Section of Early Detection and Prevention (EDP), Head: Dr Rengaswamy Sankaranarayanan and Section of Nutrition and Metabolism (NME), Head: Dr Isabelle Romieu.

37. Drs Bettina Borisch and Paul Dickman will participate in the EDP Review Panel. It was agreed that Bettina Borisch would chair the Panel.

38. Drs Neli Ulrich and Piet van den Brandt will participate in the NME Review Panel. It was agreed that Neli Ulrich would chair the Panel.

39. The external members should be chosen by the Secretariat in consultation with the Chairs of the Review Panels and the Chair of the Scientific Council.

40. The Reviews will take place at IARC in the days immediately preceding the 49<sup>th</sup> Scientific Council session.

**DIRECTOR'S RESPONSE TO THE SECTION OF GENETICS (GEN) REVIEW, HELD AT IARC IN OCTOBER 2010** (document SC/48/9)

41. The details of action taken following the review of the Section of Genetics (GEN) were discussed.
42. The provision of adequate bioinformatics support was identified as important to the GEN Section. The Agency subsequently invested to provide a new professional scientist post on the regular budget 2012–13 and a computing cluster with adequate data storage capacity (as detailed in document SC/48/6).
43. The Scientific Council expressed concern about the case ascertainment and correct diagnostic attribution. All large GEP studies on lung, upper aerodigestive and kidney cancer now involve pathology review of slides.
44. It was recognized that access to a scanner for electronic storage of pathology images and distribution among collaborating pathologists would greatly enhance the work of GEP and other Groups across the Agency. A request for support for the purchase of scientific equipment is presented in document SC/48/12. Currently access has been arranged through a short-term agreement by outsourcing this effort, although this is not a feasible medium-term solution.
45. The Scientific Council noted the Director's response to the GEN Review. The Scientific Council expressed confidence that all issues raised had been properly addressed. It was noted that pathology support would remain a challenge and that the sequencing technology may need to be renewed on a regular basis.

**SCIENTIFIC REPORT OF THE SECTION OF CANCER INFORMATION (CIN) REVIEW AND DISCUSSION** (document SC/48/WP3)

46. The Scientific Report of the CIN Review was presented by Dr Marina Pollán, Chair of the Review Panel.
47. The external advisors and Scientific Council members of the Review Panel were thanked for their valuable contributions.
48. The Review Panel noted the following concerning the CIN Section:
49. The past performance and future plans were both rated outstanding. The work of the Section was rated as a perfect fit with the Agency.
50. The overall recommendations for the CIN Section were discussed and approved.
51. The overall recommendations for CIN were:
  - There is excellent coverage of high-quality cancer registries in high-income countries;
  - There is poor coverage in some parts of the world in LMIC;
  - Hubs and twinning provide an opportunity to increase coverage in LMIC;
  - We recognize the importance of the Hub structure and recommend a comprehensive management guide for these Hubs and a phased introduction of these. The Mumbai Hub should serve as an important pilot project. It is an important opportunity to achieve worldwide cancer registration, and essential to the Global Initiative for



Cancer Registries, which is in turn a priority in response to the UN political declaration on NCDs (2011). More staff at IARC are required to implement this new activity successfully. We recommend that the GICR provides funding to IARC for at least one person per continent/region;

- We recognize the tremendous value of the CANREG5 program and its widespread use. Further support and refinements of this important package, including analytical tools, are encouraged;
- We encourage the development of cancer reporting software programs to edit, and analyse the data with the ECO model being used to expand that to a global model. We recommend fewer and more transparent systems. A "GLOBOCIM" can then incorporate "EuroCIM", "AsiaCIM", "AfroCIM" etc. This would be extremely important for the visibility of IARC as international leaders in the field. A dedicated web master resource is needed to achieve these goals;
- Related to the above point, the database software (SQL Server) needs to be updated and regularly reviewed to support new web-based developments. IT infrastructure should also be regularly reviewed;
- We suggest improvement in labelling estimates more explicitly and distinguishing those based on population-based registry data and those based on less reliable sources;
- IARC should consider its role in communicating cancer statistics effectively to the lay public;
- CIN should consider a more active advocacy role in ensuring electronic data reporting maintains the quality of data as more hospital registrations are becoming more electronic and data sources are changing;
- Registries are ranked and prioritized according to data quality criteria, local heterogeneity, strategic interest, funding possibilities, and their ability to become population based. A work plan per ranked category would ensure tracking and reporting on progress in these;
- The existence of ENCR is important in obtaining EU funds. CIN should develop a plan to keep ENCR active;
- We acknowledge the transition that CIN has come through and the impressive production in descriptive epidemiology in such a short period. However, considering the mission of the Section, future plans in methodological development could be further developed. To drive new initiatives in this field CIN needs to utilize its assets to foster collaborative methodological networks. In addition to methods development, IARC could play a leading role in achieving consensus around the many-fold methodologies developed for descriptive epidemiology;
- As the CI5 Volume X data is published, a focus should be on the expansion of appropriate statistical approaches for the analysis and interpretation of the data;
- To achieve the research objectives of CIN, and taking into account the central international role this Section plays in IARC, we recognize the need to increase staffing of descriptive epidemiologists/statisticians. They would play a crucial role analysing and interpreting the data, publishing the results, and writing grants;

- The panel recognizes the extremely important role CIN plays in training staff around the world in cancer registration. In training scientists CIN (and IARC) should also be promoting their own staff training and development. This has been identified as a specific area of concern from the staff;
- Develop a plan to increase the number of Fellows and PhD students visiting the Section as a way to foster collaboration and benefit from their expertise and new ideas. A fellowship programme like the one between IARC and Cancer Council Australia can be pursued with other countries with similar cancer societies;
- With a Hub programme being developed, we see strong possibilities of more focused training in cancer registration and analysis (for example, emulating the Nordic Cancer Union summer programme).

52. The Section and Deputy Heads thanked the Review Panel for their input.

53. The Section of Cancer Information (CIN) Review Panel Report (document SC/48/WP3) was formally accepted by the Scientific Council.

#### **SCIENTIFIC REPORT OF THE SECTION OF ENVIRONMENT AND RADIATION (ENV) REVIEW AND DISCUSSION** (document SC/48/WP4)

54. The Scientific Report of the ENV Review was presented by Dr Rick Gallagher, Chair of the Review Panel.

55. The external advisors and Scientific Council members of the Review Panel were thanked for their valuable contributions.

56. The Review Panel noted the following concerning the ENV Section:

57. The past performance and future plans were both rated outstanding. The work of the Section was rated as a perfect fit with the Agency.

58. The overall recommendations for the ENV Section were discussed and approved.

59. The overall recommendations for ENV were:

- The panel recommends the ENV Section develop a method for prioritizing research topics taking into account the size of the Section and the number of experienced investigators. This would allow emphasis on projects of the highest scientific value and on the phasing out of projects of lower priority;
- The panel felt that an attempt should be made to fund projects on a more programmatic basis (for instance pesticides and cancer risks, non-ionizing radiation and cancer risks, etc...). Multiple sources of funding and a greater range of funding sources can then be sought to ensure the continuation of important studies;
- The panel felt there is a need for a renewable post in occupational epidemiology;
- An intermediate level position in exposure assessment would be useful in order to promote and enhance future studies;

- The panel felt that there is a need for an IARC wide computer cluster to enhance data analysis and security;
- There is a need for more mentoring of junior investigators in obtaining personal and project funding.

60. The Section and Deputy Heads thanked the Review Panel for their input.

61. The Section of Environment and Radiation (ENV) Review Panel Report (document SC/48/WP4) was formally accepted by the Scientific Council.

### **PURCHASE OF SCIENTIFIC EQUIPMENT** (document SC/48/12)

62. The Chair of the IARC Laboratory Steering Committee, Dr Augustin Scalbert, presented the requests for purchase of equipment.

63. The Scientific Council noted that constant upgrade and acquisition of scientific instruments are essential to support the IARC Medium-Term Strategy.

64. To complement the investments made in 2011, following the establishment of the next-generation sequencing and HPLC/MS/MS platforms, additional support is required to improve and upgrade the nucleic acid extraction facilities and to acquire a digital slide scanner.

65. The Scientific Council was requested to advise the Director and the Governing Council on the proposed request to use funds from the Governing Council Special Fund to purchase the scientific equipment listed below:

- a) DNA extractor (QIAGEN) and equipment for DNA QC (electrophoresis and gel documentation system and volume inspection system);
- b) EZ1 Advanced XL (QIAGEN) for DNA and RNA extraction;
- c) Digital slide scanner (several types from at least three different companies will be tested before decision).

66. The Scientific Council considered these items.

- DNA extractor and related equipment (231 000€)
- EZ1 robot to extract DNA from infected cells (e.g. for Luminex assays) (50 000€)
- Equipment for quality control (40 000€)
- Digital slide scanner (172 000€)
- Total for above mentioned equipment: 494 000€

67. The Scientific Council strongly endorsed the proposal and recommended that the Governing Council approves the above-mentioned purchase of scientific equipment. In preparing the request to the Governing Council the Director should also assess the adequacy of current computer storage capacity for the digital slide scanner, and include additional requirements accordingly.

## **ELECTION OF CHAIRPERSON AND VICE-CHAIRPERSON FOR THE 49<sup>th</sup> SESSION OF THE SCIENTIFIC COUNCIL IN 2013**

- 68. Dr Mads Melbye was elected Chairperson.
- 69. Dr Neli Ulrich was elected Vice-Chairperson.

### **DATE OF NEXT SESSION**

- 70. Wednesday 30, Thursday 31 January and Friday 1 February 2013. The EDP and NME Review Panels will take place on Monday 28 and Tuesday 29 January 2013.

### **ADOPTION OF THE SCIENTIFIC COUNCIL REPORT (Document SC/48/10)**

- 71. **The report of the Forty-eighth Session of the Scientific Council was adopted.**

### **CLOSURE OF SESSION**

- 72. The customary expressions of thanks were exchanged.
- 73. Dr Wild thanked the outgoing members of the Scientific Council, Drs Ian Frazer (Australia), Karin Haustermans (Belgium), Hitoshi Nakagama (Japan), Marina Pollán Santamaria (Spain) and Sir Alex Markham (UK).

**ANNEX**  
**STATEMENT FOR THE DECLARATION OF INTERESTS**

Declarations of interest were provided by all Scientific Council members.

Interests were declared by a minority of Council members and include:

- ✓ Research funding from and consultancy for commercial entities;
- ✓ Provision of legal expert opinion;
- ✓ Commercial interest in private companies.

The list of declared interests was made available upon request, from the Chair and the Vice-Chair, for consultation during the meeting.

Upon review by the Secretariat none of the declared interests were considered to represent a potential or clear conflict of interest with respect to the content of the meeting.

<b>Scientific Council member</b>	<b>Declared interest(s)</b>
Luca Gianni	Advisory Board member of various commercial entities; Committee member on a study by Sanofi Aventis
Marina Pollán Santamaria	Partial support to the Research Project: "Determinants of Breast Density in Spanish women attending screening programs (DDM-Spain)", (AstraZeneca)  Total support to the Research Project: "Validation of the Gail Model for Predicting Individual Breast Cancer Risk in Spain", (Eli-Lilly)  Advisory work and participation in seminars on the topic: "Insulin & cancer", (Novonordisk)  Conference entitled "The Situation of Cancer in Spain" (as part of a course that takes place every two years), (AstraZeneca)
Martyn Smith	Consulting in litigation + expert opinion + testimony in courts and written reports for various law firms in the USA and the US EPA + payment for travel to industry meeting (American Chemistry Council)
Giulio Superti-Furga	Consulting for and current investment in commercial entities