1. OVERALL RATING OF THE UNIT – RATING: Excellent

2. Description of the research activity during the evaluation period 2010–2013 – RATING: Outstanding

Describe the panel’s view on the scientific quality and innovativeness of the research activity.

SUBRATING: Outstanding

The Research Centre of Applied and Preventive Cardiovascular Medicine, CAPC, mainly pilots two long-term unique studies (YFS (equivalent to LASERI), STRIP) in the field of cardiovascular risk, obesity and diabetes. In fact, the YFS it is one of the longest follow up studies world wide that started with a cohort of children at young age. Those have now been followed up since more than 30 years. A highlight is, that even after these many years more than 57% of the participants, aged 34–50 years are still registered and have been monitored every five years. The recent YFS collection has been terminated in 2012 and intensive evaluation was performed with significant results for global health, touching all three domains cardiovascular risk, obesity and diabetes. This was published in a plethora of excellent and outstanding publications. Now CAPC is doing the next evaluation series of the cohort that is planed for 2016 and will be extended to the offspring of the participants.

The STRIP study oriented towards accompanied diet recommendations has ended a milestone in 2011 when the participants were at the age twenty. The outcome was clear and showed that nutrition and behavior advice reduced cardiovascular pathologies.

The major value of this research centre are these unique long term studies followed by high quality and well managed evaluations. This includes the development and adaptation of novel techniques, including organ and vascular imaging, genetics, gene expression screens and cognition analysis, all followed and analyzed by competent bioinformatics. Thus, the innovation and originality of the project is a complex combination of the precious cohort and their analyses mentioned above.
The University of Turku is the coordination site of the multicenter national committee YFS/LASERI. Grant applications for this cohort however are submitted independently.

*Indicate strengths, weaknesses and other remarks.*

**SUBRATING: Outstanding**

The strength of these studies is based on the extremely precious long term cohorts in Finland that would be difficult to perform in countries with a higher migratory history and lack of national health registries and limited access to patient records such as the e.g. in the USA. Another strength is the modern and constant adaptation of the testing methods. On the other hand, the weakness of the study is it’s insecurity of funding regarding long term aspect, even so the publication record is outstanding. Therefore a more stable basic funding should be considered by the university and the finnish government, because e international granting agencies (EU/NIH etc.) may not like long term engagements, however we encourage the CAPC to apply for such grants inasmuch as they have ongoing international collaborations. This has now been partially achieved by a multicenter NIH grant starting in 2015.

**GENERAL COMMENTS AND RECOMMENDATIONS:**

Turku PET Centre hosts the Finnish National Center of Excellence in Cardiovascular and Metabolic research. In addition, the Strip study has been presented also as achievement of the Department of Clinical Medicine. From the interviews with both institutes it was not clear what the individual contributions are. However from neither site a merging of the institute with the institute of clinical medicine was proposed. Ideal would be that this center would take the lead for epidemiological studies in cardiovascular and metabolic domains.

In order to create as much synergy as possible and to avoid unnecessary spending of ressources the faculty and university have to decide where to put the major credits for the study.

**3. Organisation and personnel during the evaluation period 2010–2013**

– **RATING: Good**

*Describe your view on the following points:*

1. The unit’s recruiting policy of researchers at various career stages.

**SUBRATING: Good**

The CAPC has a very limited number of positions that are payed by the university. The head, post-doctoral researchers and students are payed by external grants usually limited for two years. This short term can represent a barrier for outstanding scientists as this is short for the production of data, the publication process and finding a new job. However, it seems that most collaborators were successful.
2. **Possibilities for researchers to proceed in their career.**  
**SUBRATING:** **Sufficient**

Given the limited internal career possibilities in the CAPC for young researchers, thus by definition they have to find their way elsewhere. However, due to the scientific success they seem to be competitive on the job market.

3. **Are the teachers and the researchers also actively involved in research and teaching, respectively? How do you see the balance between teaching and research?**  
**SUBRATING:** **Good**

Teaching is not performed by the head and post-docs and doctoral students and they can concentrate on research. However it is a pity that the students are not exposed to the important longitudinal studies.

4. **Gender and equality issues: pay attention e.g. i) to good gender balance as well as the proportion of foreign personnel in the personnel groups in Appendix A,**  
**SUBRATING:** **Excellent**

There is a good balance between male and female doctoral students.

and ii) to the parental leave issues and gender balance in Appendix B.  
**SUBRATING:** not disclosed to us.

**GENERAL COMMENTS AND RECOMMENDATIONS:**

The centre needs a substantial amount of scientific personnel to raise the potential of the study. Also governance of the study should be clearly set out.

4. **Research funding during the evaluation period 2010–2013**  
– **RATING:** **Sufficient**

*Describe your view on the following points:*  
A. **The success and strategy of the unit in the competition for funding.**  
**SUBRATING:** **Good**

The CAPC has good external funding, however if one calculates it for the total of five projects/PIs then it could be higher to use the full potential. The advantage is that for the centre so far only part of it is expensive wet lab, in silico and office work is by far cheaper to perform. Therefore it has to be considered how the Institute of Biomedicine could team up with the CAPC to stimulate translational research. This is why the funding is good but not outstanding.
B. Is the division of external funding into the different categories as shown in Appendix C appropriate?

SUBRATING: Excellent

External funding is excellent and exceeds the internal university funding by far and it even increased over the last four years. The sources are from Finland and from foundations.

GENERAL COMMENTS AND RECOMMENDATIONS:

The publication record and the international networking should allow to successfully apply for grants from international organizations such as the EU or NIH. This has now been achieved for the period 2015–2019. Increase in this types of grants will lead to a rating of outstanding in this subcategory.

5. Infrastructure during the evaluation period 2010–2013
– RATING: Sufficient

Describe the panel’s view on the following points:
A. Major strengths and weaknesses in the unit’s infrastructure.

SUBRATING: Excellent

The provision of biometrics and statistics is excellent given the scientific results that have been achieved. Moreover it has been reported that there is support with paper works for the study.

B. Development of the infrastructure 2010–2013 in relation to research needs.

SUBRATING: Sufficient

Biobanking of the valuable specimens seems to be insecure. It was reported that the biospecimen are transferred to a place 2 hours away from Turku. Allocation to the Aurea Biobank or at least local affiliation should be considered to secure the specimen.

C. Possible impact of the unit in developing research infrastructures.

SUBRATING: Sufficient

There is no infrastructure under development except for office space and computing. It is not clear how the imaging instrument park will be developed in Turku.

GENERAL COMMENTS AND RECOMMENDATIONS:

The problem with biobanking has to be solved by university support.


How would you evaluate the scientific quality of the unit’s research in relation to top national/international research?
The studies performed by CAPC have highest standards both on national and international levels. This statement is based on the facts that the CAPC contributes substantially to multicenter studies and the results also influence WHO recommendations. Furthermore, the publication record is outstanding.

GENERAL COMMENTS AND RECOMMENDATIONS:

To secure the quality support in performing the studies is necessary.


In respect to the size of the centre their publication rate is really outstanding and represents a highlight of the Faculty of Medicine.

How would you evaluate the publication policy and quality based on the examples of publications in the self-evaluation report and Appendixes D and E?

SUBRATING: Outstanding

Estimate the overall quality of the publications that the unit estimates as its most important ones.

SUBRATING: Outstanding

GENERAL COMMENTS AND RECOMMENDATIONS:

With respect to the increase in publications in the past two years measures need to be instituted to guarantee good scientific practices.

8. Doctoral training 2010–2013 as part of the scientific activity in the unit – RATING: Good

How would you estimate the organisation and success of doctoral training in the unit?

The CAPC formed 7 doctoral students during the last period and currently has 20 running their studies, this is good. However the interview showed that supervision could be improved, integration into the university’s graduate school is not complete and exposure of students to international researchers of high standards is insufficient. They also should more participate in seminars organized by the Faculty. It may also be advisable to expose the students to the English language.

GENERAL COMMENTS AND RECOMMENDATIONS:

Supervision of doctoral students should be improved with two mentors being formally assigned and engagement in graduate schools should be mandatory. A structured process should be implemented to avoid PhD periods > 5 yrs.
Regular journals clubs and research discussions in English and invitations of international scientists are recommended

9. Researcher mobility – RATING: Insufficient

A. How would you evaluate researcher mobility in the unit?
   SUBRATING: Insufficient

B. Has the unit succeeded in attracting international researchers?
   SUBRATING: Insufficient

GENERAL COMMENTS AND RECOMMENDATIONS:

It remained unclear if this is insufficient because of lack of initiative or low attractiveness of the region

10. International co-operation and partners 2010–2013
    – RATING: Excellent

Describe the panel’s view on the following points:
A. Success and extent of international co-operation.
   SUBRATING: Excellent

The YFS and STRIP participate in all relevant international genome wide studies and they share other data.

Has international co-operation provided clear extra value for the research?
   SUBRATING: Excellent

GENERAL COMMENTS AND RECOMMENDATIONS:

The data have been the basis of substantial number of publications


Describe the panel’s view on the following points:
A. Success and extent of national co-operation.
   SUBRATING: Outstanding

The CAPC is a multicenter with PIs and coordinators for different subdomains in Turku, Helsinki, Tampere, Kuopio, Tampere, Oulu.

B. Has the national co-operation provided clear extra value for the research?
   SUBRATING: Outstanding
They have grouped the specialists in the field.

12. **Wide-range impact of research during 2010–2013** – RATING: Excellent

*How would you estimate the impact of the unit’s research on basic and applied research?*

The CAPC performs mainly epidemiology, which can count for applied research, on the other hand CAPC has stimulated basic and original research and resulted in international recommendations.

13. **Innovations** – RATING: Excellent

*How would you evaluate the innovations (e.g. social innovations, co-operation with companies and TEKES projects, established companies, patents, innovation announcements) described in the unit’s self-evaluation report?*

The main two studies YFS and STRIP and their outcome will have a major social impact and will lead most likely to change of behavior and better therapies to avoid cardiovascular pathologies. This largely exceeds the national interest and puts Finland at the forefront of this type of research.

The self evaluation report is excellent for most aspects and most remaining issues were clarified in the on site visit.

14. **Special impact on the national and international scientific community 2010–2013** – RATING: Outstanding

*How would you evaluate the unit’s impact on scientific leadership as well as on the national and international scientific community?*

**GENERAL COMMENTS AND RECOMMENDATIONS:**

The results are well recognized by the international scientific community and resulted in changes of practice and recomendations. However, mobility of the in house students allowing presentation of data to foreign partners should be improved.


*Describe the panel’s view on the future success of the unit, paying particular attention to the following points:*
A. Is the research activity plan feasible? How do you see the ratio of the planned investments and the aimed outcomes and impacts? Does the unit describe potential weaknesses that may affect reaching these aims? How are alternative approaches being considered?

**SUBRATING: Outstanding**

In principle this is a continuation of the long term study with methodology that is established. However, for both studies STRIP and YFS, the CAPC will introduce additional aspects such as environmental toxicity, pollutants, novel, genetic risk markers, psychological metrics and include the progeny of the cohort.

B. Estimate the potential of this research activity plan for significant new outcomes, scientific breakthroughs, scientific progress in this field, as well as its potential outcomes and impacts.

**SUBRATING: Outstanding**

C. Can the panel foresee any potential scientific breakthroughs not considered by the unit itself?

**SUBRATING: Outstanding**

The outcome of the study will become exponentially more important as the cohorts for both YFS and STRIP get older and the effects will be more pronounced. This clearly will increase the significance of the study. However, it also means that the work load due to additional testing aspects will increase. The CAPC can obviously copt with this as there will be additional money available from an NIH multicenter grant.

D. Estimate the planned national and international co-operation and networks in light of the aimed outcomes and impacts.

**SUBRATING: Outstanding**

The additional networking due to a new NIH grant strengthens the networking and the synergies. The already existing international and national network will be maintained.

E. Estimate the potential of the described strategy for success in competition for funding.

**SUBRATING: Outstanding**

Due to the networks and the outstanding publication record and its study tendency for increase the CAPC is more and more better placed to get more funds in the near future.

*Did you find enough information for your evaluation of each topic in the unit’s self-evaluation and the background material provided? If not, what was missing?*

To further develop the studies and to support the quality the implementation of a clinical research unit supplying space, personnel, like study nurses, biobanking procedures and paper/legal works should be considered which could be the basis for the numerous longterm studies.