

SELECTION OF ONE PROFESSOR (LEVEL 1 – PROFESSORE ORDINARIO), FOR THE ACADEMIC RECRUITMENT FIELD 05/D1 “PHYSIOLOGY” - ACADEMIC DISCIPLINE BIO/09 “PHYSIOLOGY” AT THE INSTITUTE OF LIFE SCIENCES - ACADEMIC CLASS OF EXPERIMENTAL SCIENCES, RESERVED, PURSUANT TO ART. 24, SUBSECTION 6, OF ITALIAN LAW 240/2010, FOR ASSOCIATE PROFESSORS AND RESEARCHERS EMPLOYED AT THE SCHOOL, ISSUED BY RECTOR DECREE NO. 546 DATED 19/11/2015

FINAL REPORT

The year 2016, the 25th day of the month of July at 1.30 pm in a room of the Scuola S. Anna, the Committee met to review the selection process for the recruitment of one level 1 professor for the Academic Recruitment Field 05/D1 “Physiology” (Academic Discipline Physiology BIO/09) at the Institute of Life Science - Academic Class of Experimental Sciences of the Scuola Superiore di Studi Universitari e di Perfezionamento Sant’Anna of Pisa, reserved to level 2 professors and researchers already employed at the School pursuant to art. 24, subsection 6 of Italian law 240/2010. The Committee nominated by decree by the Rector No. 155 dated 11/03/2016 and composed of:

Prof. Giulio Bottazzi, member of the Recruitment Committee of the School;

- Prof. Corrado Poggesi, Chairperson, designated expert by the Life Sciences Institute;
- Prof. Jolanda van der Velden, Secretary, Professor at the VU University Medical Center Amsterdam;
- Prof. Pieter P deTombe, Full Professor at the Loyola University Medical School, Maywood , IL
- Prof. Carlo Reggiani, Full Professor at University of Padova;;
- Prof. Dario DiFrancesco, Full Professor at the University of Milano;

completed its work on the following days:

Preliminary meeting: on June the 16th, at 4:00 p.m. via teleconference

Second meeting: on July, the 25th, from 1.30 p.m. to 2.30 p.m. at School S. Anna, Pisa.

The Committee held a total of 2 meetings, and began its work on June the 16 and concluded it on July the 25.

Professors van der Velden, de Tombe and Di Francesco participated in the second meeting via skype as authorized to do so by the Rector in accordance with the Regulations of the School that regard calls for professors, because to-day they were unable to join the meeting.

In the preliminary meeting, the Committee nominated the President and Secretary. It was noted in the minutes that each member had declared that they had no kinship or affinity up to the fourth degree inclusive, either with each other or with the candidate.

The Committee established the date by which their work would be concluded, the criteria for the assessment of the candidate.



In the second meeting the disciplinary members of the Committee examined the publications, the CVs and the didactic activity of the candidate, and after a comprehensive discussion, unanimously declared the following candidate to have won the position: **Prof Fabio Recchia**.

Prof. Bottazzi testified that the evaluation of the candidate, the presentation of the individual assessments, the ensuing discussion and, in general, the whole procedure occurred in full compliance with the rules established by Scula Sant'Anna and its recruitment committee.

Read, approved and signed.

THE COMMITTEE

Prof. Giulio Bottazzi

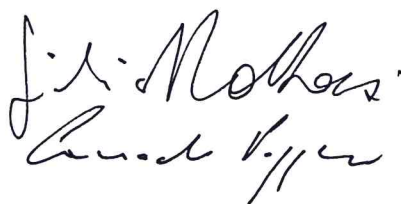
Prof. Corrado Poggesi

Prof. Jolanda van der Velden

Prof. Pieter deTombe

Prof. Carlo Reggiani

Prof. Dario DiFrancesco

Handwritten signatures of Giulio Bottazzi and Corrado Poggesi. The signature of Giulio Bottazzi is written above the signature of Corrado Poggesi.Handwritten signature of Carlo Reggiani.

ANNEX 1 – MINUTES OF THE SECOND MEETING

INDIVIDUAL ASSESSMENT

Prof. Dario DiFrancesco

Professor Fabio Recchia is presently a part-time Associate Professor of Physiology for the Sector of Medicine at the Scuola Superiore Sant'Anna, Pisa, and a Full Professor of Physiology at the Department of Physiology, Temple University School of Medicine, Philadelphia, Pennsylvania, USA.

Since the beginning of his career, the most significant part of the research activity of Fabio Recchia has been devoted to the study of coronary circulation and cardiac metabolism in its many aspects, and in particular in the failing heart.

He has been involved in studies of the action of nitric oxide in the modulation of energy substrate utilization in intact hearts. A significant contribution to the understanding of the failing heart metabolism has been the demonstration of a shift to higher cardiac glucose oxidation and lower fatty acids oxidation in decompensated heart failure. More recently, Fabio Recchia has been engaged in developing a gene transfer protocol of the vascular endothelial growth factor-B (VEGF-B) in large animals, and a method for stem cell delivery to infarcted pig hearts.

The topics of these research studies are well within the range of those covered by the subject Physiology (BIO/09).

His publication record is excellent. Fabio Recchia has published over 100 papers in high circulation journals, and his contributions to the published work are coherent and continuous, revealing a high degree of independence and scientific competence. He has also served periods in the Editorial Boards of international highly ranked journals.

Fabio Recchia has received significant recognitions in his career, among which an Established Investigator Award of the American Heart Association. He serves as a regular member in the NIH CCHF Study Section and is a member of a panel of 21 North American and European investigators selected to publish an AHA Statement on Cardiac Metabolism.

He has obtained several national and international grants from both public and private institutions, revealing an important capability to collect research funding, an essential trait of any future independent research scientist.

Fabio Recchia also presents a solid teaching curriculum, with teaching and proctoring activities in the New York Medical College and at the Temple University, where he teaches Cardiovascular Physiology since 1997, and the Scuola Superiore Sant'Anna, where he teaches Translational Medicine and Physiology subjects to Medical and PhD students since 2002. He has also a significant mentoring activity starting from the late 90s in all three teaching institutions.

Based on the above observations, I consider Fabio Recchia an excellent candidate, amply deserving a position of Full Professor at the Scuola Superiore Sant'Anna.

Prof. Corrado Poggesi

Fabio Recchia, at present associate professor of Physiology (part time) at the Scuola Superiore Sant'Anna, Pisa, has devoted his research activity for more than twenty years to the study of the physiology and pathophysiology of coronary circulation and cardiac metabolism, topics that are fully coherent with those of the discipline Physiology (BIO/09).

In terms of his publication record, Prof. Recchia has been at least as productive as those who are advanced to Full Professor at renowned US research universities as demonstrated by the full professorship in Physiology he got since 2012 at the Temple University School of Medicine, Philadelphia, Pennsylvania. Since 1995, he has published a total of more than 100 peer-reviewed papers and has progressively advanced his investigations in a very logical progression. He publishes in the best journals in physiology and in his specific area of research and the bibliometric indicators of his scientific production are excellent according to both national and international standards. He is a well known scientist held in high esteem by the international scientific

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community as also demonstrated by the prestigious awards and invitations in his CV and by his editorial activity in scientific journals. In his research activity Prof Recchia has been supported by a significant number of competitive grants, uninterrupted in the last 15 years.

The publications selected by the candidate well reflect the distinct phases embraced by his research career: (i) coronary flow regulation: impact of arterial pressure and pulse pressure changes, and role of nitric oxide; (ii) cardiac metabolism: role of nitric oxide, alterations in heart failure, and therapeutic impact of metabolic modulators; (iii) development of gene transfer of cytoprotective biological mediators (VEGF-B) and stem cell delivery to ischemic and failing hearts. The quality and originality of those publications is indeed very high; the results are very significant and internationally recognized. The leading role and fundamental contribution of the candidate to those studies is clearly evident.

Prof Recchia has also got extensive experience in teaching physiology to medical, master, and PhD students. He has mentored and trained a significant number of students and post-docs.

Based on his excellent scientific and didactic credentials, it is my opinion that Prof Fabio Recchia is fully qualified for the full Professor position in Physiology at the Istituto di Studi Superiori Sant'Anna.

Prof. Carlo Reggiani

As clearly detectable from the examination of the CV and list of publications, Professor Fabio Recchia has devoted most of his scientific activity to the study of cardiac physiology and pathophysiology, with special focus on coronary circulation and myocardial metabolism. He has consistently developed such research lines through more than 20 years reaching important and internationally recognized results.

His main achievements can be briefly summarized as follows:

--study of coronary flow regulation: coronary flow can be increased by changing the shape without changing the amplitude of the arterial pulse and this effect, which is expression of coronary vasodilation, depends at least by 50% on release of nitric oxide.

--study of changes of cardiac metabolism in relation to heart failure: heart failure is associated with the shift of cardiac metabolism towards utilization of glucose instead of fatty acid. This is modulated by endogenous and exogenous nitric oxide (NO), represents a source of ROS production associated with an upregulation of the pentose phosphate pathway and can be a target of pharmacological interventions.

--study of gene therapy and stem cell treatment in cardiac failure. Adeno-associated virus-mediated VEGF-B gene transfer has been developed and shown to have beneficial effects on the failing heart. The multi-imaging modalities available at the Institute of Clinical Physiology of the CNR, in Pisa, has been utilized to establish a novel method for stem cell tracking in myocardium, in vivo.

The results of the above studies are collected in 102 full papers published on peer reviewed journal with total citation number of 4300 and h index equal to 35 (according to Scopus data base).

The research achievements of Professor Fabio Recchia are internationally recognized: in 2007 he has received the prestigious Establish Investigator Award of the American Heart Association (AHA), recently has been invited to join a panel of 21 North American and European investigators, chosen among the top experts in the field of cardiac metabolism, to deliver an AHA Statement titled "Assessing Cardiac Metabolism",

To support his research activities, Professor Fabio Recchia has shown a high ability in fund raising both in the US where he has obtained financial support from NIH without interruption from 2000 to 2020 and in Italy where he has been able to obtain public (PRIN) and private financial support.

The 20 papers presented for the present evaluation, 16 as a last author and 3 as a first author, are clearly representative of the above described three main research lines and provide a clear demonstration of the leading role of professor Fabio Recchia in research.

Beside the excellent qualification as investigator in cardiac physiology, Professor Recchia also shows a significant experience as teacher and mentor both for undergraduate and postgraduate students, particularly not only in the medical school.



Based on all above considerations, I can express my personal view that professor Fabio Recchia is fully qualified to be called on the chair of physiology at the Istituto di Studi superiori Sant'Anna.

Prof. Pieter P deTombe

I have been given the opportunity to evaluate Professor Fabio Recchia qualifications to be considered for the position chair of physiology at the Istituto di Studi Superiori Sant'Anna. At the outset, I want to convey my warm support and state that in my opinion, Professor Fabio Recchia is fully qualified for this position.

Professor Fabio Recchia has worked in the United States for many years. I know him from his reputation, his published papers, occasional discussions and encounters at scientific meetings. We have also jointly served on many national federal and foundation grant review panels over the years. Hence, it is fair to say that I know Professor Fabio Recchia quite well.

Fabio has made significant contributions to the fields of i) cardiac coronary perfusion, demonstrating the pivotal role of nitric oxide, ii) cardiac metabolism, demonstrating the changes in cardiac metabolism away from fatty acid towards glucose substrate utilization in hypertrophy and heart failure, and iii) more recently, cardiac regeneration and revascularization in the failing heart. These efforts have led to more than 100 peer reviewed articles, a clear sign of sustained productivity.

Fabio has also been supported by the National Institutes of Health (NIH) in the form of research awards, uninterrupted since 2000. This is a very significant accomplishment. NIH grants are not easy to obtain by any standard and, thus, sustained NIH funding for two decades is a clear sign of excellence and peer recognition. Moreover, Fabio has been awarded the prestigious American Heart Association Established Investigator Award. These are stimulus awards given only to the most promising young investigators aimed to stimulate, promote and support their scientific career. As a testament to the prestige of that award, many, if not all, of its recipients go on to become prominent scientists, institute directors, and department chairs later in their careers. Professor Fabio Recchia clearly fits in that category.

Fabio has been active in teaching, both at the graduate and the medical school level. Although it is not possible for me to judge the quality of his teaching from afar, from my personal interactions with Fabio over the years I have no doubt that he is an excellent teacher as well.

Finally, Fabio has made significant contributions to the scientific community in terms of grant review and scientific journal editorial and peer review duties. This is an important aspect of our job as leaders in the scientific community, and he has demonstrated continued dedication to this aspect of his service to the scientific community and demonstrates he is serious about the duties expected from a scholar.

In conclusion, it is my opinion that Professor Fabio Recchia is fully qualified to be appointed as chair of physiology at the Istituto di Studi Superiori Sant'Anna.

Prof. Jolanda vanderVelden

Fabio Recchia has finished his training as anesthesiologist/intensive care doctor in 1993 and only 5 years later obtained his PhD. His PhD was performed within an international setting as he did internships a research fellow at prestigious centers such as Johns Hopkins in Baltimore (mentor Prof. David Kass) and the New York Medical College in Valhalla (mentor Prof. Thomas Hintze). In his PhD period he managed to publish 6 papers, of which 2 as first author in the high-ranked cardiovascular journal Circulation Research. After his PhD he became instructor and subsequently assistant professor at the New York Medical College (NYMC). The number of publications with Profs. Kass and Hintze as co-author is large (~30) and include a substantial number of papers in high-ranked journals, illustrating his high productivity.

Since 2002 he has been appointed as Associate Professor of Physiology at the Scuola Superiore Sant'Anna in Pisa, which he combined with an Associate Professorship at the NYMC in the period 2003-2009. In the period 2009-2012 he was Full Professor at the NYMC, and since 2012 he has



been working as Full Professor of Physiology at the Temple University School of Medicine in Philadelphia.

He has been active as member of committees of the American Heart Association, NIH and the Animal Care and Use Committee at the NYMC. Prof. Recchia has an impressive career in Physiology research on the effect of nitric oxide and metabolism of the heart, which is emphasized by the Established Investigator Award of the American Heart Association in 2007 and multiple grants. He received his first R01 as principal investigator in 2012, which was recently (2016) extended for another 4 years.

Apart from his scientific activities, he has extensive experience in teaching Physiology to master, PhD and medicine students. He has mentored 7 master students, 14 post-doctoral fellows and 5 PhD students (2 ongoing).

Compared to MD/PhD researchers within the Netherland, his track record is exceptional, with 102 publication, multiple invited lectures and high capacity of obtaining funding. Based on his high performance in scientific research and teaching, I believe Prof. Fabio Recchia is fully qualified for the chair of Physiology at the Istituto di Studi Superiori Sant'Anna.

ANNEX 2 – MINUTES OF THE SECOND MEETING

COLLEGIAL ASSESSMENT

Professor Fabio Recchia is presently a part-time Associate Professor of Physiology at the Scuola Superiore Sant'Anna, Pisa, and a Full Professor of Physiology at the Department of Physiology, Temple University School of Medicine, Philadelphia, Pennsylvania, USA. He has devoted most of his scientific activity to the study of coronary circulation and cardiac metabolism in its many aspects, and in particular in the failing heart. The topics of his research activity are fully coherent with those of the discipline Physiology (BIO/09). Among the most significant results he obtained there are: (i) the demonstration that coronary flow can be increased by changing the shape without changing the amplitude of the arterial pulse, an effect that is partly mediated by nitric oxide; (ii) a significant contribution to the demonstration that heart failure is associated with a shift to higher cardiac glucose oxidation and lower fatty acids oxidation; this shift, modulated by nitric oxide, represents a source of ROS production and can be a target of pharmacological interventions; (iii) the development of novel methods for stem cell tracking in myocardium, in vivo and the demonstration of the beneficial effects on the failing heart of gene transfer of cytoprotective biological mediators (VEGF-B).

Prof. Recchia has an impressive career in Cardiovascular Physiology research which is emphasized by the Established Investigator Award of the American Heart Association (AHA) and the recent invitation to join an AHA panel of top experts in the field of cardiac metabolism. Prof Recchia scientific track record is excellent, with 102 peer-reviewed publications on high impact journals, multiple invited lectures and high and uninterrupted capacity of obtaining funding.

Prof Recchia has also made significant contributions to the scientific community in terms of grant review and scientific journal editorial and peer review duties.

Prof Recchia has got extensive experience in teaching physiology to medical, master, and PhD students. He has also mentored and trained a significant number of students and post-docs both in Italy and the States.

The Committee unanimously recognizes that Prof Fabio Recchia is fully qualified for the full Professor position in Physiology at the Istituto di Studi Superiori Sant'Anna.