

**SELECTION OF ONE ASSOCIATE PROFESSORS FOR THE ACADEMIC RECRUITMENT FIELD 06/D1 CARDIOVASCULAR AND RESPIRATORY DISEASES – ACADEMIC DISCIPLINE MED/11 CARDIOVASCULAR DISEASES, AT THE ACADEMIC CLASS OF EXPERIMENTAL AND APPLIED SCIENCES – CENTER HEALTH SCIENCES PURSUANT TO ART. 24, SUBSECTION 5, OF ITALIAN LAW 240/2010, ISSUED BY RECTOR DECREE NO. 328 DATED 23/05/2022.**

The Committee for the evaluation of Dr. Alberto Giannoni, tenure-track – probationary, assistant professor, in the third year of his temporary contract pursuant to Italian Law no. 240/2010, art. 24 paragraph 3 letter B, in order to promote him to Associate Professor in the Academic Recruitment Field 06/D1 Cardiovascular and Respiratory Diseases – Academic Discipline MED/11 Cardiovascular Diseases, at the Academic Class of Experimental and Applied Sciences – Center Health Sciences, nominated by the Rector by decree No. 421 dated 24/06/2022, consists of:

- Prof. Antoni Bayes Genis, Professor at the Universitat Autònoma de Barcelona
- Prof. Giuseppe Boriani, Professor of the Academic Recruitment 06/D1 Cardiovascular and Respiratory Diseases at the University of Modena, designated expert by the School;
- Prof. Gaetano Maria De Ferrari, Professor of the Academic Recruitment 06/D1 Cardiovascular and Respiratory Diseases at the University of Torino;
- Prof. Marco Metra, Professor of the Academic Recruitment 06/D1 Cardiovascular and Respiratory Diseases at the University of Brescia;
- Prof. Ileana L Piña Wayne, Professor at the State University, Detroit
- Prof. Andrea Roventini, Professor of the Academic Recruitment 13/A1 “Economics” at the School member of the Recruitment Committee Sant’Anna School

The Committee convened on October 3, 2022, at 3 PM by Webex as authorized by the Rector. Pursuant to art. 5 paragraph 2 of Legislative Decree no. 1172/1948, each member declared that they have no kinship or affinity up to the fourth grade with any of the other members and the candidate, that there are no reasons for abstention in relation to art. 51 of c.p.c. and that he is not in any situation, actual or potential, of conflict of interests with the candidate (as per art. 6 bis of the Legislative Decree No 241/1990).

Prof. Gaetano Maria De Ferrari was nominated as President and Prof. Giuseppe Boriani as Secretary.

The Committee then reviewed the Call and especially his article 4 and agreed that the candidate shall be assessed according to the parameters established by Ministerial Decree 344/2011, in relation to the compliance of the scientific profile with the "general criteria of qualification for teaching and research required for access to professoral positions at the School" established by the School's Commission for Recruitment and set out in article 1 of the Call.

The members of the Committee stated that the Personnel Office of the School has provided them with an electronic copy of the documentation submitted by the candidate containing: application, curriculum, publications with a declaration in lieu of an affidavit certifying compliance with the original, and a list of all the documents accompanying the application and that they have examined it and made their individual assessments, which are reported in Annex 1 of these minutes.

The Committee then collectively examined the publications, curriculum and teaching activities of the candidate, confronted their individual assessments and reviewed the collegiate assessment annex sub 2 attached to the minutes of which it is an integral part.

Then after a full discussion, on the basis of a unanimous vote, the Committee declared that Dr. Alberto Giannoni:

is qualified to be appointed as associate professor.

Prof. Roventini (Member of the Recruitment Committee) 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 Scuola Sant'Anna and its recruitment committee.

Given the conclusion of the selection procedure for one position of Associate Professor in the Academic Recruitment Field 06/D1 Cardiovascular and Respiratory Diseases – Academic Discipline MED/11 Cardiovascular Diseases, at the Academic Class of Experimental and Applied Sciences – Center Health Sciences pursuant to art. 24, subsection 5 of Italian law 240/2010, the President declared the work closed.

These minutes, and the attached declarations of the Committee's members connected via teleconference will be given to the Personnel Office in order for these proceedings to be verified, with a decree by the Rector.

The session closed at 4 PM

Read, approved and signed,

The Committee President - Prof Gaetano Maria De Ferrari

The Committee Secretary – Prof Giuseppe Boriani

The Committee Members

## ATTACH 1

### INDIVIDUAL ASSESSMENTS

Commission President: Prof. Gaetano Maria De Ferrari

The Candidate has both a medical Degree and a PhD title; is currently a Type-B Researcher (Assistant Professor), SSD MED/11, at Sant'Anna School of Advanced Studies since November 2019."

The candidate during his time as Assistant Professor, has worked to consolidate his scientific leadership and independence, both regarding the scientific production itself as well as the attraction of funding. Specifically, he worked to establish himself as a researcher in cardiovascular diseases with an international profile. Through research activities, projects, and collaborations, he pursued the goal of expanding his interest towards a multidisciplinary approach focusing on cardiorespiratory physiology and pathophysiology. He worked at the development of novel diagnostic tools (biomarkers and imaging), and of prognostic predictive models in the field of cardiology. This activity has allowed him to build a recognizable national and international expertise.

His research activity includes three main themes.

**The first** is the study of cardiovascular diseases as a problem of feedback dysregulation. This line of research includes the study of visceral feedbacks (chemoreflex, baroreflex and ergoreflex) and their role in cardiorespiratory integration and the brain-heart relationship, both in the physiological and in the pathophysiological conditions. In the clinical setting of heart failure, hypertension and sleep apneas he applied a rigorous methodology including functional magnetic resonance imaging of the brainstem (fMRI), high-density electroencefalography (EEG), microneurography (muscle sympathetic nerve activity [MSNA] recordings) and multiparametric signal analysis both in steady state condition and during physiological perturbations.

**The second** theme of research is based on the use of echocardiography as diagnostic tool for non-invasive hemodynamic assessment in cardiovascular diseases. The activity focuses on the development of novel ultrasound-based algorithms to estimate cardiac output, left ventricular filling pressure, pulmonary pressure and vascular resistances as well as right atrial pressure. These studies aim to develop novel tools and mathematical models for diagnosis, prognosis and guidance to treatment in heart failure and in pulmonary hypertension.

**The third** theme of research consists in the integration of phenotype and genotype data for the prediction of sudden cardiac death risk prediction in the young. This research focuses on young subjects with a family history of sudden death (SD) or of a disease predisposing to SD. Accurate phenotyping of patients with channelopathies or cardiomyopathies is coupled with careful investigations on the potential significance of the different genetic background, studied with next-generation sequencing (NGS) approaches. This research activity aims to identify reliable predictors of risk for SD and is conducted in close collaboration with electrophysiologists, heart imagers and genetic specialists, as well as with biomedical engineers and biostatisticians

The candidate has been actively involved in several multinational research projects and specifically in several grant proposals. In addition to several proposals which were not funded and a couple of proposals that are currently under evaluation, the following proposals were funded and see the current candidate in a leading role:

- Investigational Site Leader (FTGM, Pisa) for the TUNE-BEAM project (Tuscany Network for BioElectronic Approaches in Medicine), project duration 3 years (2020-2023), funded by the Tuscany Region within the Bando Ricerca Salute 2018, total budget 998,000€ (budget SSSA 198.000 €, budget FTGM 150,000 €).

- Work Package (WP5) leader for the JUST project (Juvenile Sudden cardiac death: JUST know and treat), project duration 3 years (2018-2021), funded by Fondazione Pisana per la Scienza, total budget 450,000 €. WP5 dealt with the screening of juvenile sudden cardiac death through questionnaires and electrocardiography in the high schools

The scientific production presented for the evaluation appears coherent with SSD Med11 and is related to the study of heart failure and in particular to the relationship with the respiratory function.

Among the several papers presented, few deserve a specific mention.

The 2022 JACC HF first name paper appears an important contribution showing the independent predictive role of the evaluation of baroreceptor and of chemoreceptor activity on the prognosis of patients with heart failure. The deleterious prognostic role of increased chemosensitivity in these patients confirms a previous study of the applicant, published in a noteworthy JACC 2009, also present among the papers selected for the evaluation.

The 2021 European Journal of Heart Failure first name paper: "*Benefit of buspirone on chemoreflex and central apnoeas in heart failure: a randomized controlled crossover trial*" is a potentially important proof of concept of the possibility to pharmacologically decrease central chemoreflex sensitivity in humans.

In the same journal the candidate published in 2017 an interesting study assessing ergoreflex sensitivity and its correlated in a population of patients with mitochondrial disease and no established cardiac involvement.

Overall, the applicant has shown a good publication consistency and an appreciable methodological rigor. The presented papers are characterized by a good level of originality, and the impact factors of the journals are good or very good. The candidate is first author in the majority of the papers.

The candidate, at the time of application for the position had a Scopus H-index of 23, with 1732 citations and 121 publications. In 69 of these publications the candidate is first, second or last author.

The candidate held 41 hours of formal teaching in 2020/2021, and 31 hours in 2021/2022, delivered either to undergraduate students (Master's Degree in Medical Sciences, SSA) or PhD students (PhD Students in Translational Medicine, SSSA). In addition, in 2021 he was actively involved in coordination and lectures within the SSSA Seasonal School MEDSKILL to undergraduate students, he held lessons for 16 hours in the ACLS course for undergraduate and postgraduate SSSA students, and for 6 hours in the 2<sup>nd</sup> level University Master on clinical pathophysiology and management of heart failure. Finally, he lectured to undergraduate and PhD students of the University of Muenster (as Affiliated Researcher) and to postgraduate students of the Specialty Course in Internal Medicine at the University of Pisa.

The candidate has been co-supervisor of five thesis in Medicine and Surgery and one in Engineering and supervisor of one thesis in Medicine and Surgery.

He has received awards from the Regione Toscana and from the European Society of Cardiology (2007 ESC Research Grant Award -24,000 in Vienna. He also was finalist for the 2006 Young Investigator Award of the European Congress of Heart Failure, Helsinki. In conclusion, the candidate shows a strong scientific and academic profile and is fully qualified to be promoted to the role of Associate Professor at Sant'Anna School of Advanced Studies

Commission Secretary: Prof Giuseppe Boriani

Type-B Researcher (Assistant Professor), SSD MED/11, at Sant'Anna School of Advanced Studies since

November 2019

MD from the University of Pisa

PhD in Innovative Technology

Research fellowship at the Imperial College of London

The candidate has a valid scientific production, with an international profile and has actively collected funding for research.

The main topics of scientific activities are cardiorespiratory physiology and pathophysiology with original contributions in the field of biomarkers and imaging, as well as in outcome prediction.

In details scientific researches were addressed to the study of visceral feedbacks (chemoreflex, baroreflex and ergoreflex) and their role in cardiorespiratory integration and the brain-heart relationship, both in the physiological and in the pathophysiological conditions (heart failure, hypertension and sleep apnea). Other studies were focused on echocardiography, for non-invasive hemodynamic assessment in cardiovascular diseases (to estimate cardiac output, left ventricular filling pressure, pulmonary and right atrial pressure and vascular resistances). Another field has been sudden cardiac death, focusing on integration of phenotype and genotype data, both in channelopathies and cardiomyopathies. The CV shows involvement in several multinational research projects and grant proposals, and some of them were funded (2018-21 and 2020-23).

The scientific production presented for the evaluation appears coherent with SSD Med 11, with original and interesting contributions on the evaluation of baroreceptors and of chemoreceptors on the outcome of patients with heart failure, also with some assessment of pharmacological modulation of central chemoreflex sensitivity.

In summary:

- Valid scientific activity with original contributions
- First authorship in the majority of the contributions
- Scopus H-index of 23, with 1732 citations and 121 publications (in 69 position of candidate is first, second or last author).
- Activity on education and tutorship for medical students

According to my evaluation, the candidate has a valid scientific and academic profile and fulfills the

requirements for promotion to the role of Associate Professor at Sant'Anna School of Advanced Studies

Commission Member: Prof Ileana Pina

Dr. Giannoni has both a medical doctorate and a PhD. In the short time since completing studies, he has accomplished much in the important areas of education, research, publications. His MD is from the University of Pisa and did his Cardiology training at the University of Genova. Later completed a PhD in Innovative Technology. In addition, he completed a research fellowship at the Imperial College of London having won a Fellowship funding in 2008.

He credits the following mentors for his roadmap to academics, i.e., Prof Michele Emdin, Prof. Claudio Passino, and Prof Darrel Francis at the Imperial College, London.

**Work experience:**

2019–today Tenure-track Assistant Professor in Cardiovascular Diseases (06/D1, SSD MED 11), Scuola Superiore Sant'Anna, Pisa, Italy

2016–today Consultant Cardiologist (permanent position), Fondazione Toscana G. Monasterio, Pisa, Italy

2018 –today Affiliate Researcher, University of Muenster, Muenster, Germany

2018 –2019 Affiliate Researcher, Scuola Superiore Sant'Anna, Pisa, Italy

2012 –2016 Consultant Cardiologist (temporary position), Fondazione Toscana G. Monasterio, Pisa, Italy

### **Scientific Interests**

The research track that he has followed is for translational approach and has focused on brain-heart interactions and the neuroendocrine control of cardiovascular and respiratory function in health and disease. Additional interests are the pathophysiology of visceral feed-backs, such as chemoreflex, and others as related to cardio-respiratory cross-talk, in hypertension, sleep apnea and HF. At least one publication is related to Cheyne-Stokes respiration. Additionally, he has worked on mathematical modelling of respiratory control, novel tools for the physiological evaluation of the neural control of cardiovascular and respiratory system (EEG and fMRI), and for the diagnosis and treatment of central apneas in HF.

Comments: There seems to be a lack of focus in the publications content, although many of them include the area of feed back loops and reflexes.

### **Publications**

Dr Giannoni has been very active in publications with over 120 articles in peer-reviewed Journals and 10 chapters. Comments about the somewhat lack of focus in topics. He is currently Associate Editor for Frontiers Physiology, Associate Editor for Frontiers in Cardiovascular Medicine, and academic Editor for PLoS One. He currently reviews for several journals.

### **Collaborations**

Dr. Giannoni has listed approximately 28 collaborations within his own site and S'Anna and other sites. This list seems excessive for the time since his completing Cardiology training. This list is parallel to the inconsistent lack of focus in his publications.

### **Honors and awards**

2011 POR Travel Grant -Regione Toscana, Italy

2007ESC Research Grant Award -European Society of Cardiology (24,000 €), Vienna

2006Young Investigator Award Finalist -European Congress of Heart Failure, Helsinki

### **Tutorials and mentoring of students before the tenure-track period**

2019 Cosupervisor (Correlatore) of Daniele Caratozzolo, Medicine and Surgery Degree, with honors, UNIPI, thesis: "Evaluation through functional magnetic resonance imaging of the brainstem activation in patients with heart failure and Cheyne-Stokes respiration."

2018 Cosupervisor (Correlatore) of Francesco Gentile, Medicine and Surgery Degree, with honors, UNIPI, thesis: "Chemoreflex, haemodynamics and ventilatory response in the genesis of central apneas in chronic heart failure."

2018 Cosupervisor (Correlatore) of Simone Cauzzo, Bionics, Engineering Degree, with honors, UNIPI, thesis: "Models of BOLD Signal Change in Breath Hold Studies: Methodological Issues and Interpretation."

2018 Supervisor (Relatore) of Chiara Borrelli, Master Degree on Medical Sciences, SSSA, with honors, thesis: "Central apneas cause ticagrelor related dyspnea in patients with acute coronary syndrome".

2017 Cosupervisor (Correlatore) of Chiara Borrelli (SSSA students), Medicine and Surgery Degree, with honors, UNIPI, thesis: "Buspirone as a treatment for central apneas in heart failure. A randomized double blind placebo controlled study."

2016 Cosupervisor (Correlatore) of Alberto Aimò (SSSA students), Medicine and Surgery Degree, with honors, UNIPI, thesis: "Heart involvement in mitochondrial disease."

2014 Cosupervisor (Correlatore) of Valentina Raglianti, medicine and Surgery Degree, UNIPI, thesis: "Chemoreflex and central apneas in heart failure: by pulmonary hypertension."

In Summary, Dr Giannoni has accomplished much in his short time as Assistant Professor which includes educational efforts for students. Has won an award for best teacher. Has

multiple publications and has been asked to speak primarily locally and in Italy with very few outside of Italy. Those are sufficient for promotion to Associate. This reviewer's concern is that the research and academic focus is diffuse. At a level of Associate Professor, scientific focus lines should be better defined.

Commission Member: Prof Antoni Bayes-Genis

Dr Giannoni has accomplished much in his short time as Assistant Professor. He has a strong publication record with many first author publications in important journals and with significant potential implications. His research interests are wide with a specific expertise in the area of reflexes in patients with heart failure.

He has shown commitment to teaching and has won an award for best teacher. He has been an invited speaker in several mostly national congresses. Altogether, in my opinion Dr Alberto Giannoni is qualified for the promotion to Associate Professor in the field of Cardiovascular Diseases

Commission Member: Prof Marco Metra

Dr Giannoni has a strong publication record with many first author publications in important journals and with significant potential implications. His research interests are wide with a specific expertise in the area of reflexes in patients with heart failure. In this specific area he is considered an international expert and has a very good reputation.

He has shown commitment to teaching and has won an award for best teacher. He has been an invited speaker in several mostly national congresses. Altogether, in my opinion Dr Alberto Giannoni is qualified for the promotion to Associate Professor in the field of Cardiovascular Diseases



## ATTACH 2

### COLLEGIATE ASSESMENTS

Dr Giannoni has accomplished much in his short time as Assistant Professor.

He has a strong publication record with many first author publications in important journals and with significant potential implications. His research interests are wide with a specific expertise in the area of reflexes in patients with heart failure. In this specific area he is considered an international expert and has a very good reputation.

He has shown commitment to teaching and has won an award for best teacher. He has been an invited speaker in several mostly national congresses.

Altogether, the Committee considers Dr Alberto Giannoni to be qualified for the promotion to Associate Professor in the field of Cardiovascular Diseases (MED/11).

