

Working group on VASCULAR STRUCTURE AND FUNCTION

STEERING COMMITTEE

CHAIR

Bart Spronck

Department of Biomedical Engineering
School of Engineering & Applied Science
Yale University
New Haven, CT, United States

bart.spronck@yale.edu

VICE-CHAIR

Pedro Guimarães Cunha

Department of Internal Medicine
Centro Hospitalar do Alto Ave
Medical School
University of Minho
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SECRETARY

Rosa Maria Bruno

University Paris Descartes and INSERM U970
Paris Cardiovascular Research Center (PARCC)
Paris, France

rosa-maria.bruno@inserm.fr

IMMEDIATE PAST-CHAIR

Pierre Boutouyrie

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Paris, France

pierre.boutouyrie@aphp.fr

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ESH 2019 SUMMARY

At the 2019 ESH meeting in Milan, we held two meetings:

WORKING GROUP MEETING: **ARTERIAL STRUCTURE AND FUNCTION – TECHNIQUES, THEIR MEANING AND THEIR VALUE**

Friday, June 21, from 16:00-17:00, Yellow Hall 1.

Programme:

- 16:00-16:15 **Martin Schultz:** *Central blood pressure measurement in the clinic – what's there and what's missing?*
- 16:15-16:30 **Bart Spronck:** *"Arterial stiffness" – different metrics, different meanings*
- 16:30-16:45 **Johannes Baulmann:** *Pulse wave velocity – beyond the gold standard*
- 16:45-17:00 Discussion

During our meeting, Dr. Schultz updated us on the current advancements and shortcomings on central blood pressure monitoring. Dr. Spronck subsequently focused on the importance of the measurement conditions under which arterial stiffness is measured – i.e., in vitro is not always comparable to in vivo. Finally, Dr. Baulmann critically appraised pulse wave velocity, highlighting accomplishments but also put the finger on important potential shortcomings in our current validation protocol.

BUSINESS MEETING: **THE EU-COST ACTION VascAgeNet: BUILDING A NETWORK FOR RESEARCH IN VASCULAR AGEING**

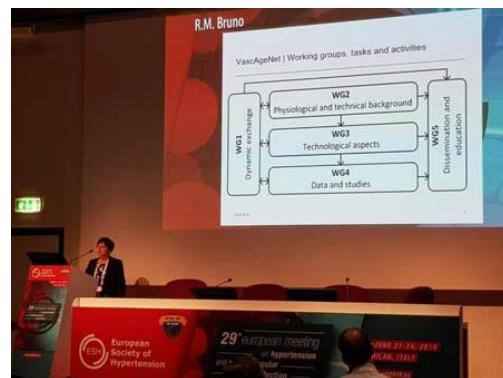
Sunday, June 23, from 18:00-19:00, Yellow Hall 2.

Programme:

- 18:00-18:10 **Christopher Mayer:** *The "making of" of the VascAgeNet COST action*
- 18:10-18:20 **Rosa Maria Bruno:** *VascAgeNet: Main objectives and actions*
- 18:20-18:30 Questions and answers
- 18:30-19:00 General meeting

This year's business meeting differed slightly from a standard business meeting, in that it was started by two presentations on the EU-COST action VascAgeNet – a networking grant that was acquired by four young investigators of the ARTERY Society: Christopher Mayer, Rosa Maria Bruno, Rachel Climie, and Bernhard Hametner. During the presentations, the grant contents and timeline were briefly summarised. For more information, contact our secretary (rosa-maria.bruno@inserm.fr).

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Christopher Mayer and Rosa Maria Bruno presenting the EU-COST action VascAgeNet.

Subsequently, it was announced that the Working Group Steering Committee composition changed. Rosa Maria took over the Secretary position from Bart Spronck, who took over the Chair position from Pierre Boutouyrie. Pedro Cunha (chair of the ESH Working Group on Hypertension and the Brain) remains Vice Chair.

Finally, Pierre Boutouyrie informed us that our position paper on vascular consequences of inflammation, which was the topic of the 2018 Working Group meeting, was initially rejected and is currently being prepared for resubmission to European Heart Journal.

MEMBERS AND ASSOCIATED PEERS

Our working group welcomes new people with an **interest in vascular structure and function**. We distinguish between **Working Group Members** and **Working Group Associated Peers**. ESH regulations stipulate that only ESH Members can be considered Working Group Members – all others will automatically become Working Group Associated Peers.

BECOMING A MEMBER OR ASSOCIATED PEER?

Applicants should have

1. A degree in medicine, biomedical science, or any related field — we aim for a multidisciplinary membership.
2. A willingness to actively participate in working group activities.

Applicants can be from all continents — i.e., from in- or outside Europe. Applications should be directed to the secretary (rosa-maria.bruno@inserm.fr).

With your application, please include the following details:

1. First name
2. Surname
3. Gender
4. Email address
5. Affiliation (at which institute you are working)
6. City
7. Country
8. Main specialty: choose **one** of:
 - a. Basic Science
 - b. Biomedical engineering
 - c. Cardiology
 - d. Clinical Science
 - e. Epidemiology
9. Date of birth
10. ESH membership (are you currently an ESH member?)
11. Three to five keywords that best describe your interests
12. Whether you agree to show your name, affiliation, and keywords on the Working Group website

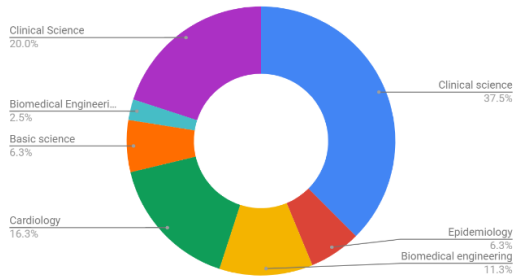
We will not be able to process your application without these details.

CURRENT MEMBERS AND ASSOCIATED PEERS

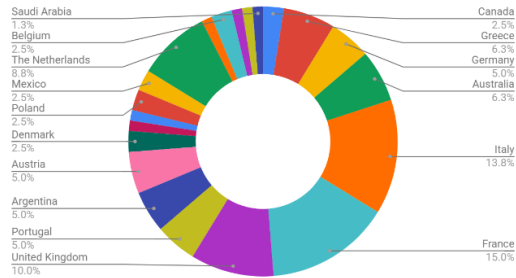
	Young investigator				Gender		
	Total	Yes	No	%	Female	Male	% female
Members	25	4	21	16%	5	20	20%
Associated Peers	55	12	43	22%	11	44	20%
Total	80	16	64	20%	16	64	20%

DEMOGRAPHICS (BASED ON MEMBERS AS WELL AS ASSOCIATED PEERS)

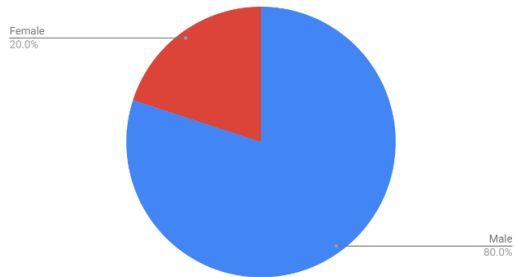
Main specialty



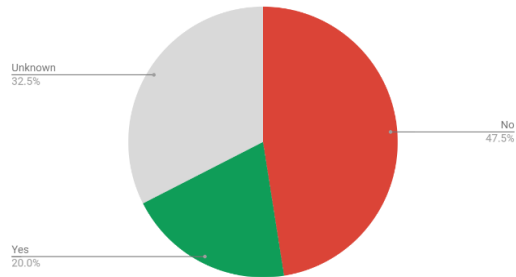
Country



Gender



Young investigator?



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MEMBER AND ASSOCIATED PEER LIST

Note: this list only includes people who gave consent to publish their name here.

<u>First name</u>	<u>Surname</u>	<u>Affiliation</u>	<u>City</u>	<u>Country</u>	<u>Keywords</u>
Mohsen	Agharazii	Université Laval	Québec	Canada	kidney disease; vascular stiffness; vascular calcification; inflammation
Guillermo	Alanis	University of British Columbia	Vancouver	Canada	arteriosclerosis; cardiac function; spinal cord injury; atherosclerosis
Antonios	Argyris	National and Kapodistrian University of Athens	Athens	Greece	arterial stiffness, aortic blood pressure, atherosclerosis, ambulatory blood pressure monitoring
Natalie	Arnold	Preventive Cardiology and Preventive Medicine, Centre for Cardiology, University Medical Centre of the Johannes Gutenberg-University Mainz	Mainz	Germany	arterial stiffness; arterial hypertension; biomarker; epidemiology
Alberto	Avolio	Macquarie University	Sydney	Australia	arterial hemodynamics; pulse wave analysis; arterial stiffness; blood pressure
Johannes	Baulmann	Dres. Gille/Baulmann	Bonn	Germany	arterial stiffness; central pressure; risk stratification
Elisabetta	Bianchini	Institute of Clinical Physiology, CNR	Pisa	Italy	cardiovascular bioengineering; ultrasound; medical devices regulatory
Rosa Maria	Bruno	Université Paris Descartes - UMR970 INSERM	Paris	France	vascular imaging; arterial stiffness; risk prediction; rare vascular diseases; ultrasound
Marina	Cecelja	King's College London	London	United Kingdom	arterial stiffness; genetics; epidemiology
Rachel	Climie	INSERM	Paris	France	physiology; diabetes; exercise
Pedro	Cunha	Center for the Research and Treatment of Arterial Hypertension and Cardiovascular Risk, Guimarães Life and Health Sciences Research Institute (LCHS) School of Medicine, University of Minho (CVS/3B's - PT Government Associate Laboratory, Braga/Guimarães, Portugal	Guimarães	Portugal	arterial stiffness; large arteries; brain; vascular aging; cardiovascular risk; hypertension
Neeraj	Dhaun	University of Edinburgh	Edinburgh	United Kingdom	nephrology; hypertension; cardiovascular disease; endothelin; immunity
Francesco	Faita	Institute of Clinical Physiology	Pisa	Italy	ultrasound biomarkers
Pierre	Fesler	CHU Lapeyronie	Montpellier	France	hemodynamics; arterial stiffness; hypertension; ventricular-arterial coupling
Pedro	Forcada	Artery society	Buenos Aires	Argentina	cardiovascular mechanics and prevention
Davide	Grassi	University of L'Aquila	L'Aquila	Italy	endothelium; arterial stiffness; cardiovascular prevention; nutrition; nutraceuticals
Bernhard	Hamethner	AIT Austrian Institute of Technology	Vienna	Austria	pulse wave analysis; mathematical blood flow models; wave separation

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Tine	Hansen	Steno Diabetes Center Copenhagen	Gentofte	Denmark	diabetes; arterial stiffness; risk stratification
Alun	Hughes	UCL	London	United Kingdom	hemodynamics; cardiac function; cardiovascular disease
Fran	Kirkham	Brighton and Sussex University Hospital Trust	Brighton	UK	ageing, sarcopenia; CAVI; vascular ageing
Patrick	Lacolley	UMR_S 1116 Inserm	Vandoeuvre- Les-Nancy	France	mechanotransduction; arterial stiffness; vascular smooth muscle cells
Stephane	Laurent	Hopital Europeen Georges Pompidou and INSERM	Paris	France	arterial stiffness; arterial mechanics; antihypertensive agents; cardiovascular risk factors
Cátia	Leitão	University of Aveiro	Aveiro	PRT	arterial stiffness devices; optical sensing; central pressure; pulse wave velocity; devices validation
Susana	Lopes	Susana Lopes	Aveiro	Portugal	exercise; hypertension; vascular ageing; arterial stiffness
Alessandro	Maloberti	Niguarda Hospital	Milan	Italy	arterial Stiffness; heart failure; uric acid
Christopher	Mayer	AIT Austrian Institute of Technology GmbH	Vienna	Austria	biosignal analysis; pulse wave analysis; mathematical modelling
Carmel	McEniery	University of Cambridge	Cambridge	United Kingdom	blood pressure; haemodynamics; hypertension in the young; vascular stiffness
Diego	Mendo	Diego Mendo	Rosario	Argentina	hypertension; vascular function; cardiometabolism; atherosclerosis
Jose	Mesquita Bastos	Mesquita Bastos	Aveiro	Portugal	epidemiology; abpm; pwv-exercise; pwv-resistant hypertension; pwv-stemi
José	Milei	Universidad de Buenos Aires	Buenos Aires	Argentina	hypertension; ischemia-reperfusion; atherosclerosis; cardiomyopathies
Maria Lorenza	Muiesan	University of Brescia	Brescia	Italy	pulse wave velocity; carotid int_plaque; micro-circulation
Krzysztof	Narkiewicz	Krzysztof Narkiewicz	Gdansk	Poland	hypertension; cardiovascular medicine; sleep disorders; autonomic nervous system
Michael Hecht	Olsen	Department of Internal Medicine, Holbaek Hospital	Holbaek	Denmark	risk stratification; hypertension management; hypertension mediated organ damage
Dean	Picone	Menzies Institute for Medical Research, University of Tasmania	Hobart	Australia	blood pressure measurement; large artery hemodynamics
Athanasios	Protogerou	Cardiovascular Prevention & Reseach Unit, Department of Pathophysiology, Medical Department, School of Health Science, National and Kapodistrian University of Athens	Athens	Greece	24-hour ambulatory central haemodynamics evaluation; inflammatory diseases and central haemodynamics
Giacomo	Pucci	University of Perugia	Perugia	Italy	arterial stiffness; ambulatory blood pressure monitoring; echocardiography

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Chakravarthi	Rajkumar	Brighton & Sussex Medical School	Brighton	United Kingdom	ageing; vascular stiffness; hypertension; frailty; cognition
Carlos	Ramos	University of Guadalajara	Guadalajara	Mexico	arterial stiffness; central aortic pressure; hypertension and cardiovascular diseases
Koen	Reesink	CARIM School for Cardiovascular Diseases, Maastricht University	Maastricht	The Netherlands	arterial stiffness; hemodynamics; physiology
Fernando	Ribeiro	School of Health Sciences and Institute of Biomedicine - iBIMED, University of Aveiro	Aveiro	Portugal	exercise training; physical activity; endothelial function; low-grade inflammation
Damiano	Rizzoni	University of Brescia	Brescia	Italy	microcirculation; oxidative stress; immunology; inflammation; endothellum
Enrique	Rodilla	Hospital de Sagunto / Universidad Cardenal Herrera-CEU, CEU Universities	Valencia	Spain	target organ damage; pulse wave velocity; left ventricular hypertrophy; abpm
Massimo	Salveti	Universita di Brescia	Brescia	Italy	hypertension; organ damage
Maximo Agustin	Schiavone	Charite Universitätsmedizin Berlin	Berlin	Germany	atherosclerosis; inflammation; heart rate variability
Martin	Schultz	Menzies Institute for Medical Research, University of Tasmania	Hobart	Australia	central haemodynamics; exercise physiology; blood pressure
Martin	Schultz	Menzies Institute for Medical Research, University of Tasmania	Hobart	Australia	hypertension; blood pressure; exercise physiology; arterial stiffness; haemodynamics
Leon	Schurgers	Maastricht University	Maastricht	The Netherlands	vascular smooth muscle cells; remodeling; cardiovascular disease
Patrick	Segers	Ghent University	Gent	Belgium	arterial function; biomechanics; biofluids; modeling
James	Sharman	Menzies Institute for Medical Research	Hobart	Australia	pressure waveform analysis; accurate blood pressure measurement
Bart	Spronck	Yale University	New Haven, CT	United States	arterial stiffness; biomechanics; computer modelling
Coen	Stehouwer	Maastricht University Medical Centre+	Maastricht	The Netherlands	diabetes; arterial stiffness; microcirculation; hypertension; ckd
Harry	Struijker-Boudier	Maastricht University	Maastricht	The Netherlands	microcirculation; arterial stiffness; pharmacology
Dimitrios	Terentes-Printzios	Athens Medical School	Athens	Greece	arterial stiffness; biomarkers; cardiovascular disease; hypertension; sexual dysfunction
Pierre-Louis	Tharaux	Inserm and Université de Paris	Paris	France	microcirculation; kidney; hypertension; autoimmunity; vasculitis
Areti	Triantafyllou	3rd Clinic of Internal Medicine, Papageorgiou Hospital, Aristotle University of Thessaloniki	Thessaloniki	Greece	microcirculation; macrocirculation; endothelial function; brain; retinal
Christophe	Tzourio	University of Bordeaux	Bordeaux	France	vascular brain ageing; pulsatility; microvessels

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Thomas	van Sloten	Maastricht University Medical Centre	Maastricht	The Netherlands	brain; diabetes; microvascular; arterial stiffness; elderly
Gabriel	Waisman	Instituto Cardiovascular Lezica	Buenos Aires	Argentina	cardiovascular prevention; hypertension; non invasive hemodynamics
Siegfried	Wassertheurer	AIT Austrian Institute of Technology	Vienna	Austria	arterial stiffness; hemodynamic; blood pressure measurement
Thomas	Weber	Klinikum Wels-Grieskirchen	Wels	Austria	pulsatile hemodynamics; arterial stiffness; heart failure; coronary artery disease
Luca	Zanoli	University of Catania	Catania	Italia	arterial stiffness; inflammation; baroreflex; chronic kidney disease
Tan Lai	Zhou	Cardiovascular Research Institute Maastricht	Maastricht	The Netherlands	blood pressure (variability); arterial stiffness; vascular biology

PAST MEETINGS – ESH 2018 BUSINESS MEETING

At the 2018 ESH meeting in Barcelona, we held a business meeting on Saturday, June 9 from 18:15 to 19:45.

The topic of our meeting was systemic inflammation and arterial damage, in line with our upcoming consensus paper on systemic inflammation and arterial properties.

PROGRAMME

- 18:15 **Ernesto Schiffrin:** *Inflammation and immune mechanisms in small artery remodelling and hypertension*
18:45 **Charalambos Vlachopoulos:** *Acute inflammation and large artery stiffness*
19:15 Roundtable discussion
19:45 End

SUMMARY — LARGE AND SMALL ARTERIES AT THE CENTER OF HYPERTENSION

We had a seminal session on the central role of inflammation in hypertension. This year's session was again well received, with an attendance of 40–45 people. Prof. Boutouyrie presented a general overview of the working group and summarised our activities. After this, our position paper on **vascular consequences of inflammation** was discussed through two state-of-the-art presentations by Prof. Schiffrin and Prof. Vlachopoulos, followed by an interesting wrap-up with many questions and answers.

Related to our working group, the ARTERY-ESH meeting was very successful, starting with 100 participants and finishing with over 400. New insights in investigations were developed by Prof. Boutouyrie. The basic role of small arteries environment and vascular smooth muscle cells in the development of cardiovascular diseases was presented by Prof. Heagerty and Prof. Lacolley, respectively. Prof. Cruickshank, president of the ARTERY society, presented how vascular structure and function could be integrated in cardiovascular care.

RULES AND REGULATIONS

ARTICLE 1

The Working Group on Vascular Structure and Function (WG) is established as a working group of the European Society of Hypertension (ESH) according to the by-laws of the ESH. The internal governance of the WG is regulated by ESH Council-approved rules and regulations.

ARTICLE 2

The WG encourages research, teaching, and communication of knowledge, and participates in education focused on vascular structure and function in hypertension.

Specific objectives include:

- To promote, organise and/or co-ordinate research on this subject
- To gather and exchange information regarding research and related activities within the working group
- To contribute to the organisation, preparation and delivery of the scientific program of the annual ESH Congress and to support and participate in other ESH scientific meetings and symposia
- To organise and participate in educational activities within the ESH
- To organise teaching workshops on suitable topics related to vascular structure and function
- To contribute to the organisation, preparation, and delivery of joint sessions with other relevant national or international societies in scientific meetings
- To promote and organise education on this subject
- To contribute to task forces for the development and implementation of ESH guidelines and joint guidelines with sister societies
- To establish appropriate recommendations for the ESH Council regarding the subject matter of the WG
- To develop position papers and consensus documents on vascular structure and function in collaboration with sister societies
- To contribute to the content of the ESH website

ARTICLE 3

The working group distinguishes between WG Members and WG Associated Peers. ESH regulations stipulate that only ESH Members can be considered WG Members. Both WG Members and WG Associated Peers are welcome to WG meetings and the WG General Assembly and can actively participate in all the initiatives of the WG. However, only WG Members will have formal active and passive voting rights — WG Associated Peers do not have voting rights.

ARTICLE 4

The Steering Committee consists of:

- Chair, Vice-Chair, immediate Past-Chair, and Secretary
- Ex-officio members: The Steering Committee may nominate ex-officio members to carry out specific tasks

The Secretary is elected for 2 years, renewable through re-election for a further 2 years. After these 4 years, a person may not be re-elected as Secretary during the following 4 years.

The Vice-Chair is elected for a period of 2 years. The Vice-Chair automatically becomes the Chair for the following 2 years. Should the Vice-Chair object to automatically become Chair, he may be

renewed through re-election as Vice-Chair for a further 2 years. In that case, after the 4 years as Vice-Chair, a person may not be re-elected as Vice-Chair during the following 4 years.

The Chair automatically becomes Past-Chair for the following 2 years, after his/her term of office has expired. After these 2 years, a person may not be re-elected as Vice-Chair during the following 4 years.

The ex-officio members are appointed for 2 years, renewable for a further 2 years.

All elections will take place through electronic voting, directly before the annual ESH Congress.

Instalment of the Steering Committee happens during the annual ESH Congress. If no such Congress takes place, or if the Congress is postponed, elections and instalment are postponed until an annual ESH Congress takes place. Until then, the current Steering Committee will remain in place.

ARTICLE 5

The Secretary, with the agreement of the Chair and Vice-Chair, is responsible for preparing an annual report on the activities of the WG for the ESH Council and the membership, to be presented and approved at the Annual General Assembly.

ARTICLE 6

The Steering Committee will meet at least once a year at the annual ESH Congress. The Steering Committee may meet in conjunction with other events and hold conference calls when required.

ARTICLE 7

A General Assembly will be held during the annual ESH Congress, typically once per year. The agenda of the General Assembly will be drawn up by the Chair.