

Focus of research group – AFib

Name PI:

Bianca Brundel

Department, UMC:

Physiology, location VUmc

Size of research group:

Post-doc:

Deli Zhang (Dr. Dekker) and Marit Wiersma (ACS grant)

PhD student:

Denise van Marion, Xu Hu, Larissa Dorsch, Jin Li

Research assistant:

Lucienne Baks, Thais van Beuren

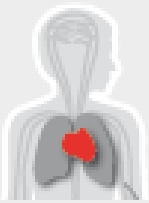
Partners:

Cardiac Arrhythmia Lab: Natasja de Groot (EMC), Alle-Jan van der Veen and Wouter Serdijn (TU Delft)

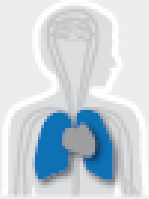
Current mission, vision and aims

Improve AF patient-tailored drug treatment and diagnostics by:

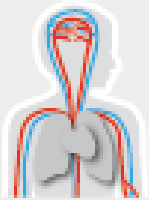
- 1) Uncovering key **molecular mechanisms** which underlie electropathology and AF onset and progression
- 2) Identify novel **pharmaco-therapeutics** which target electropathology and test drugs in clinical AF studies
- 3) Design **diagnostic instruments** to determine stage of electropathology



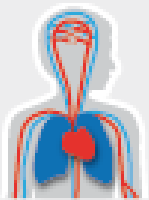
Heart Failure & Arrhythmias



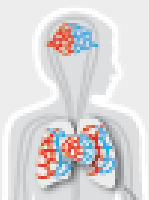
Pulmonary Hypertension
& Thrombosis



Atherosclerosis
& Ischemic Syndromes



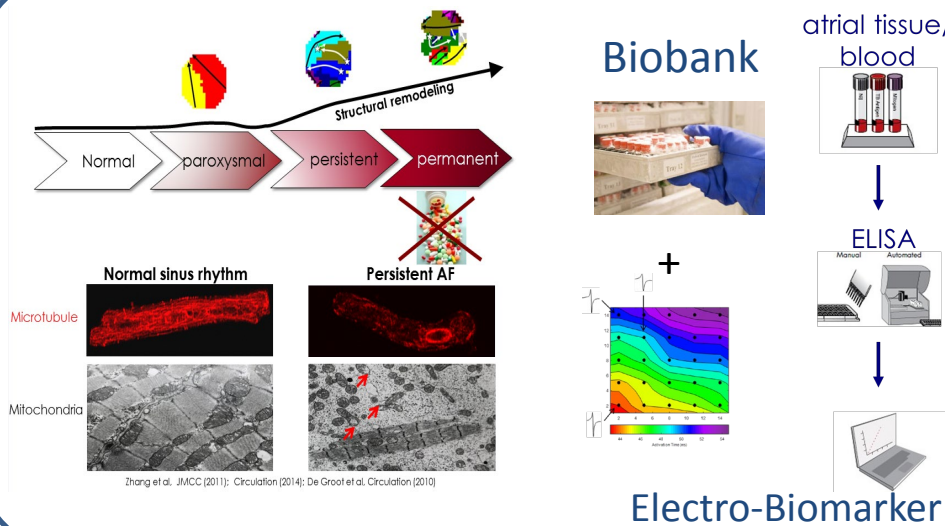
Diabetes & Metabolism



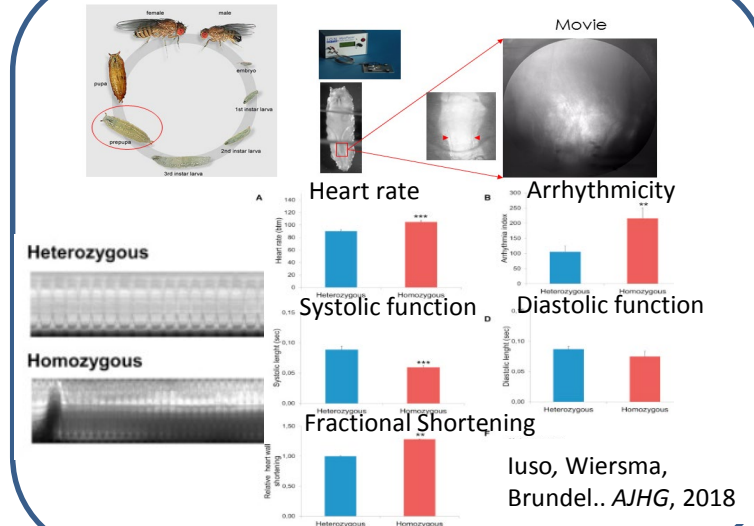
Microcirculation

Expertise: Improve AF patient-tailored drug treatment and diagnostics

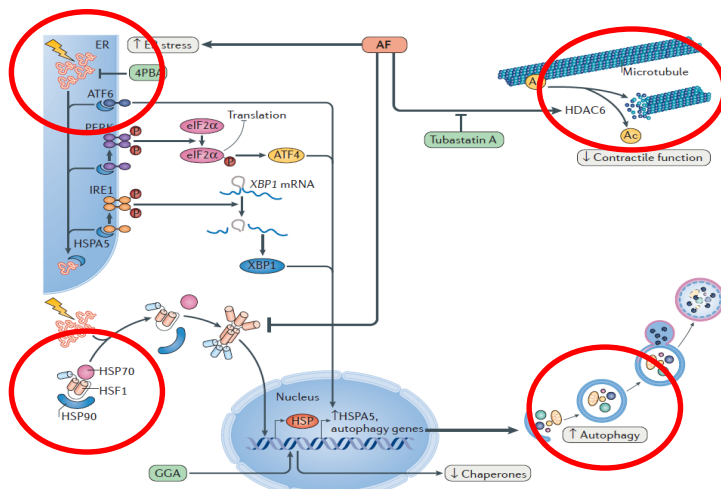
Early diagnosis of AF: structural and electrical AF Fingerprint



AF model: Tachypaced *Drosophila* prepupae

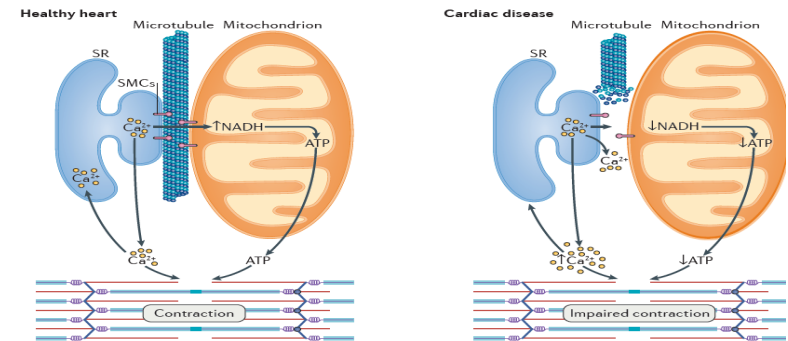


AF-induced proteostasis derailment & druggable targets



Henning and Brundel *Nature Rev Cardiology* 2017

Expansion of research line:



- AF patients, risk factors for AF (Zhang)
- Familial AF (Wiersma)

Future plans:

Short term (1-2 year) plan

- Continue molecular and biomarker studies in AF and familial AF
- Continue building of AF tissue and blood biobank
- Conduct clinical trials (collaboration EMC)
- Attract funding with Cardiac Arrhythmia Lab (Medical Delta: EMC/TU Delft)

Necessary infrastructure: available.

Long term (>2 year) plan

- Expand clinical drug studies: multicenter
- Incorporate AF-fingerprint in daily clinical practice
- Expand Cardiac Arrhythmia Lab

Necessary infrastructure:

Setup AF-on-a-Chip: joint efforts of Medical Delta (TU Delft, EMC, Vumc) and Innovation program with German-Dutch SMEs and Universities on heart-on-a-chip program

Ongoing collaboration in ACS

- Genetic Metabolic Diseases: Rob Wust/Riekelt Houtkooper on mitochondrial function
- Medical biochemistry: Vivian de Waard on use of *Drosophila* in Nur77 project
- Clinical genetics: WGS in familial AF (Tintelen, UMCU)