

INSPIRE

A European Training Network in Safety Pharmacology

HESI Cardiac Safety Technical Committee (CSTC)

23 April 2020

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www.inspire-safety-pharmacology.eu



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What is INSPIRE?

MARIE SKŁODOWSKA-CURIE ACTIONS

Innovative Training Networks (ITN)
Call: H2020-MSCA-ITN-2019

PART B

Acronym: “INSPIRE”

Innovation in **S**afety **P**harmacology for **I**ntegrated cardiovascular safety assessment to
Reduce adverse events and late stage drug attrition.



This proposal is to be evaluated as:

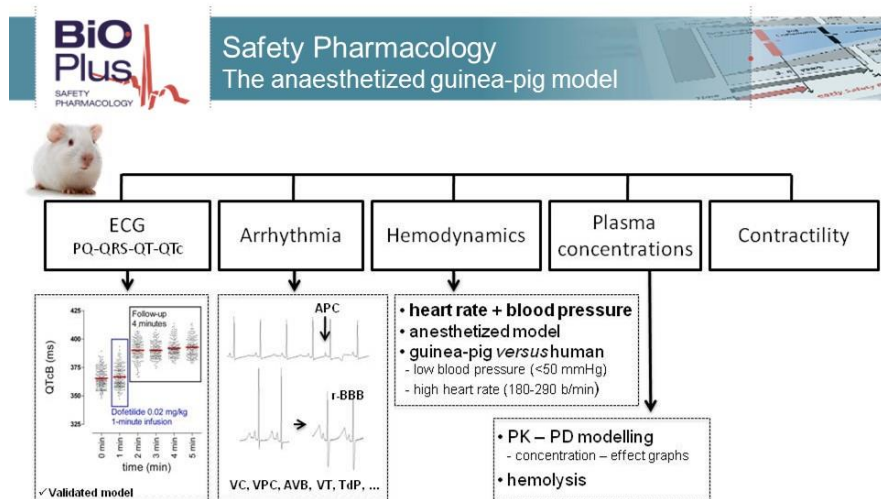
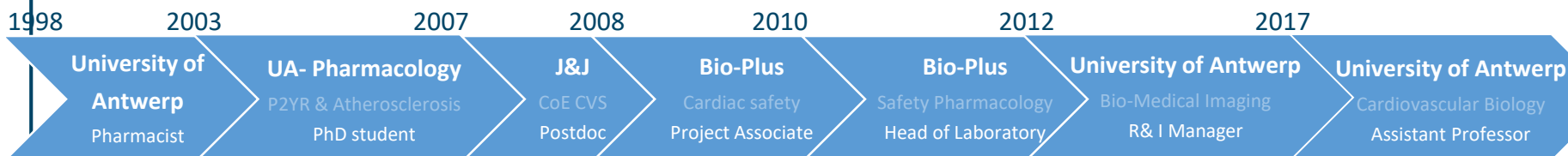
ETN

“INSPIRE”

- MSCA-ITN funding
- European Training Network (ETN)
- Coordinator: University of Antwerp
- Starting date: Jan 2020 – Dec 2023
- 15 PhD positions (ESR)
- ~4 Million €

- I. My background...**
- II. Marie Sklodowska Curie Actions (EU-funding)**
- III. Project scope**
- IV. Summary PhD-projects & clusters**
- V. Training Programme**

I. My background...

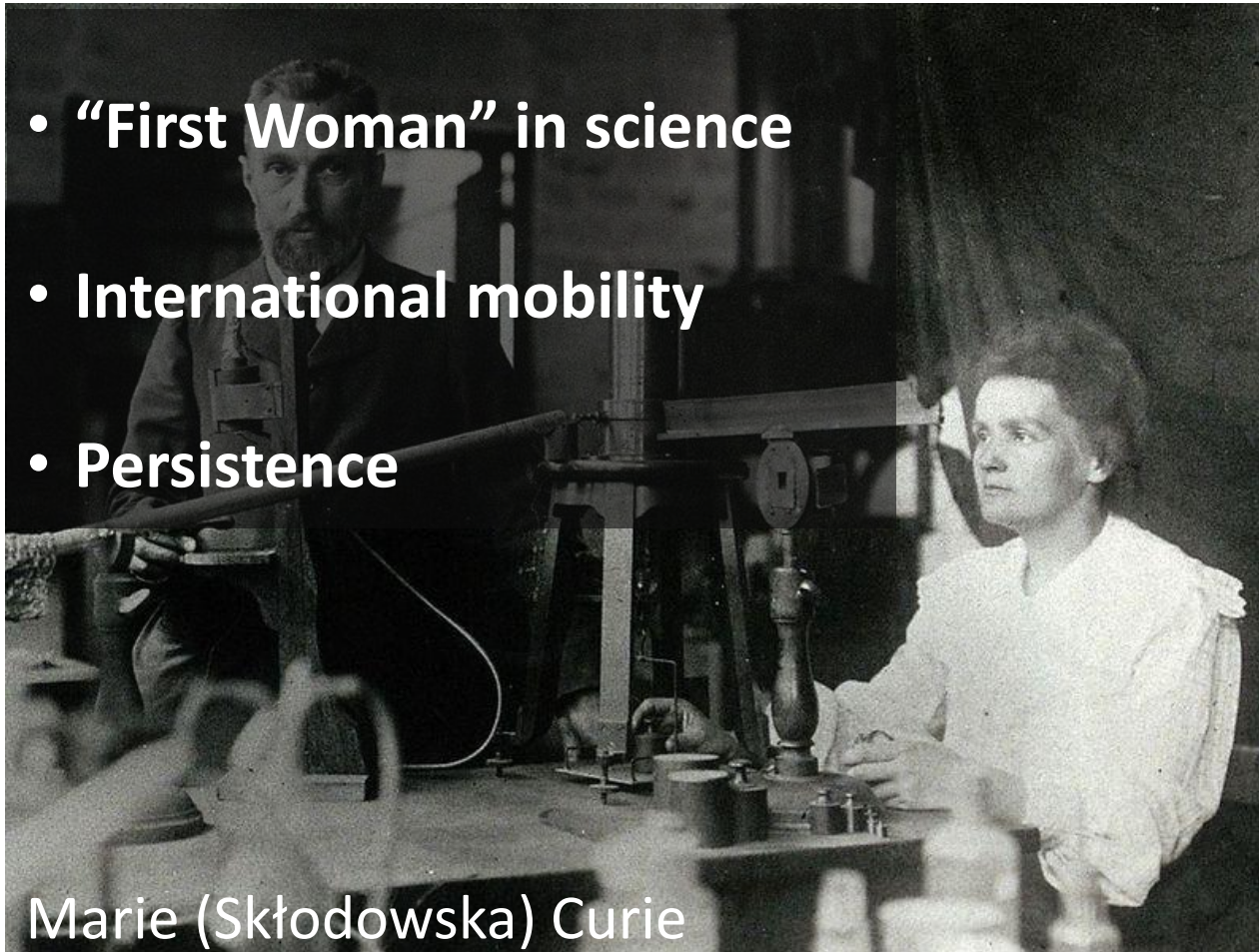


agency for Innovation
by Science and Technology



II. MSCA-ETN programme

- “First Woman” in science
- International mobility
- Persistence

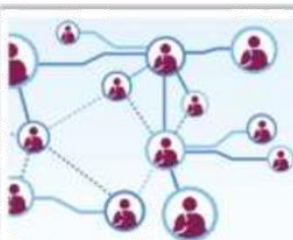


Marie (Skłodowska) Curie



II. MSCA-ETN programme

Marie Skłodowska-Curie Actions



ITN Innovative Training Networks

What does it offer?

High-quality research training delivered through international and interdisciplinary networks, industrial doctorates or joint doctorates

Who applies?

International networks of research organisations from the academic and non-academic sectors

Who is funded?

Researchers at doctoral level (less than four years of full-time research experience and no doctoral degree)



IF Individual Fellowships

What does it offer?

Opportunities to work on personal research projects by moving between countries and possibly sectors to acquire new skills

Who applies?

Individual researchers together with the host organisation

Who is funded?

Postdoctoral researchers



RISE Research and Innovation Staff Exchange

What does it offer?

The exchange of staff members involved in research and innovation to develop sustainable collaborative projects and the transfer of knowledge

Who applies?

International networks of research organisations from the academic and non-academic sectors

Who is funded?

Researchers, technical, administrative and managerial staff of any nationality and at all career levels



COFUND Co-Funding of Regional, National and International Programmes

What does it offer?

Regional, national or international programmes to foster excellence in researchers' training, mobility and career development

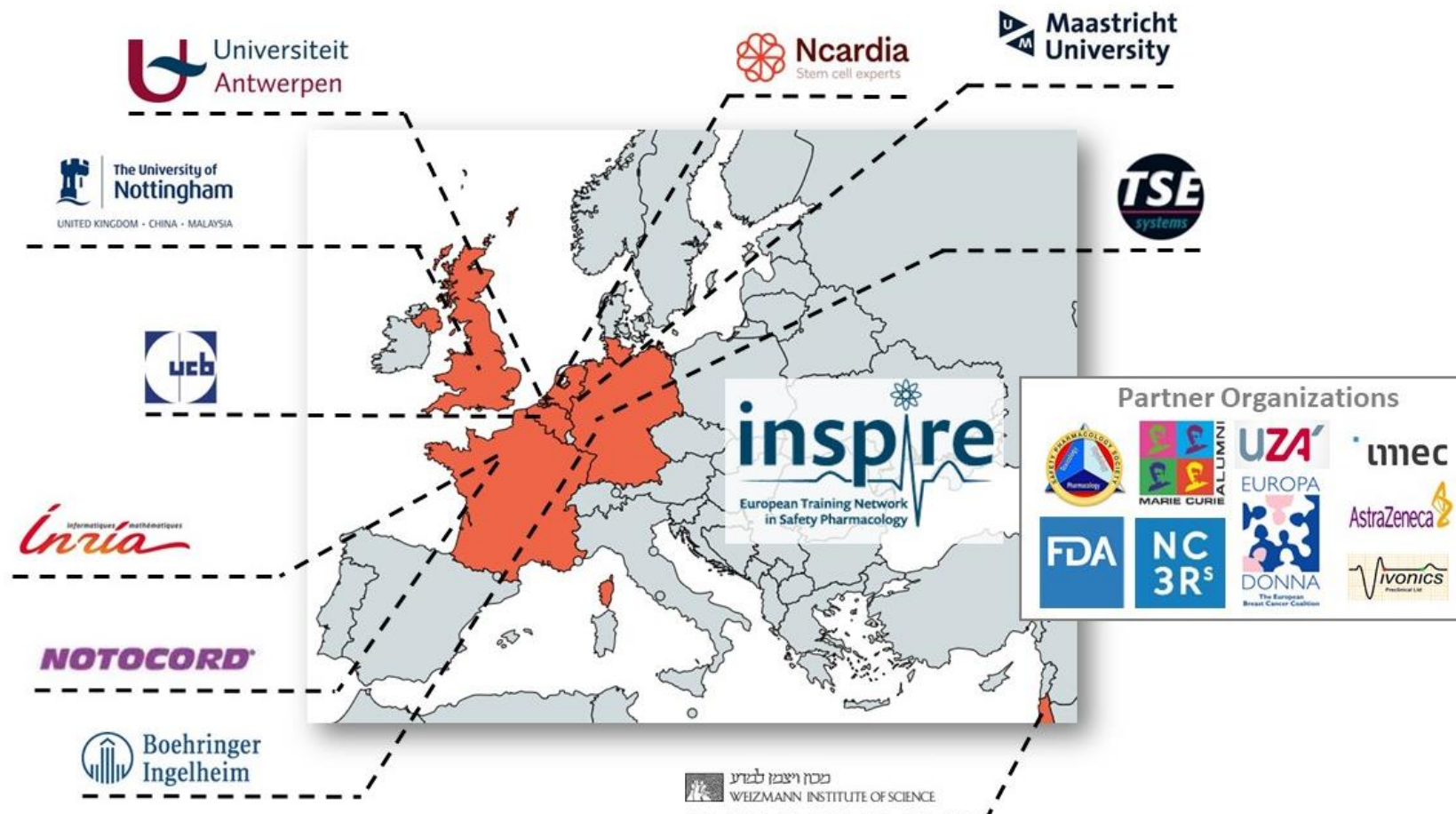
Who applies?

Organisations funding or managing doctoral programmes or fellowship programmes

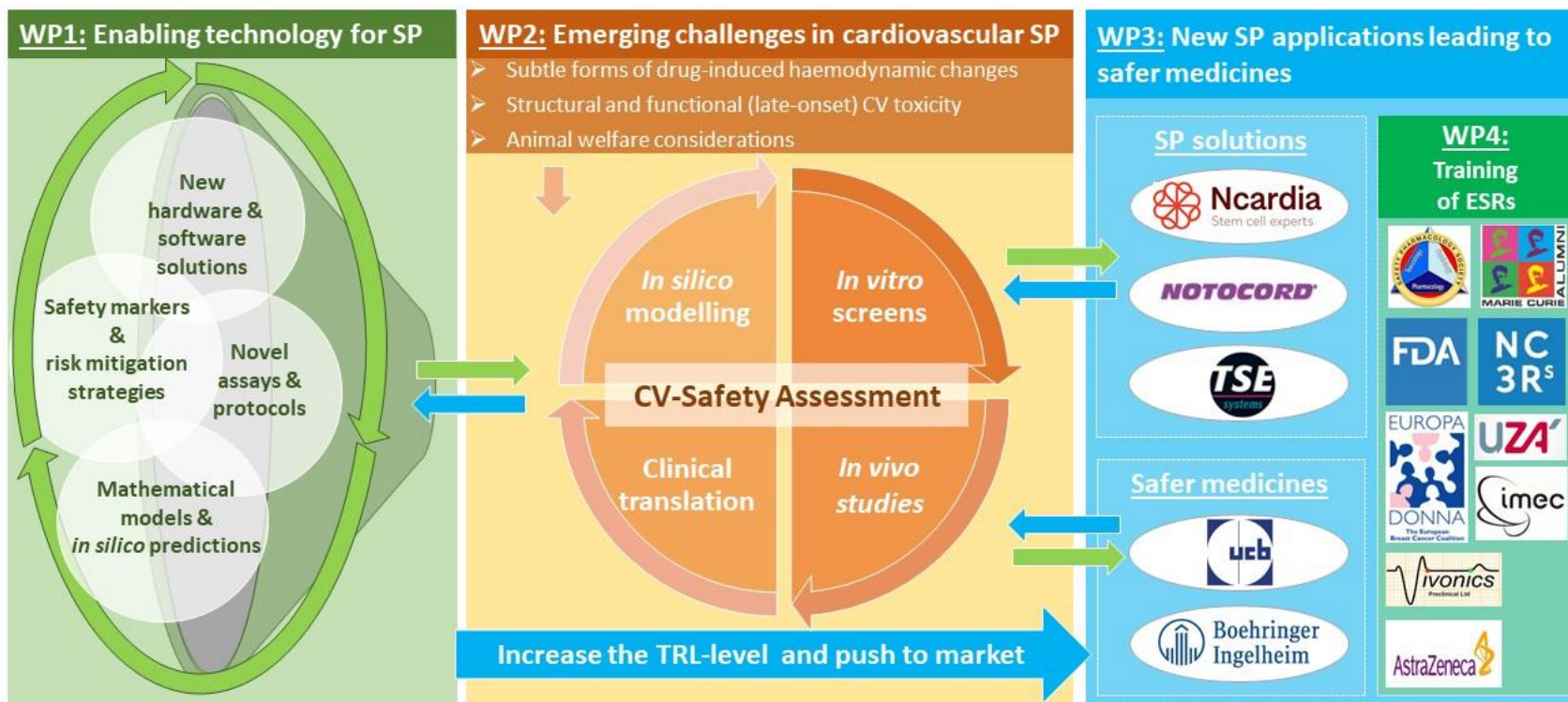
Who is funded?

Researchers at doctoral and postdoctoral level

III. Project scope

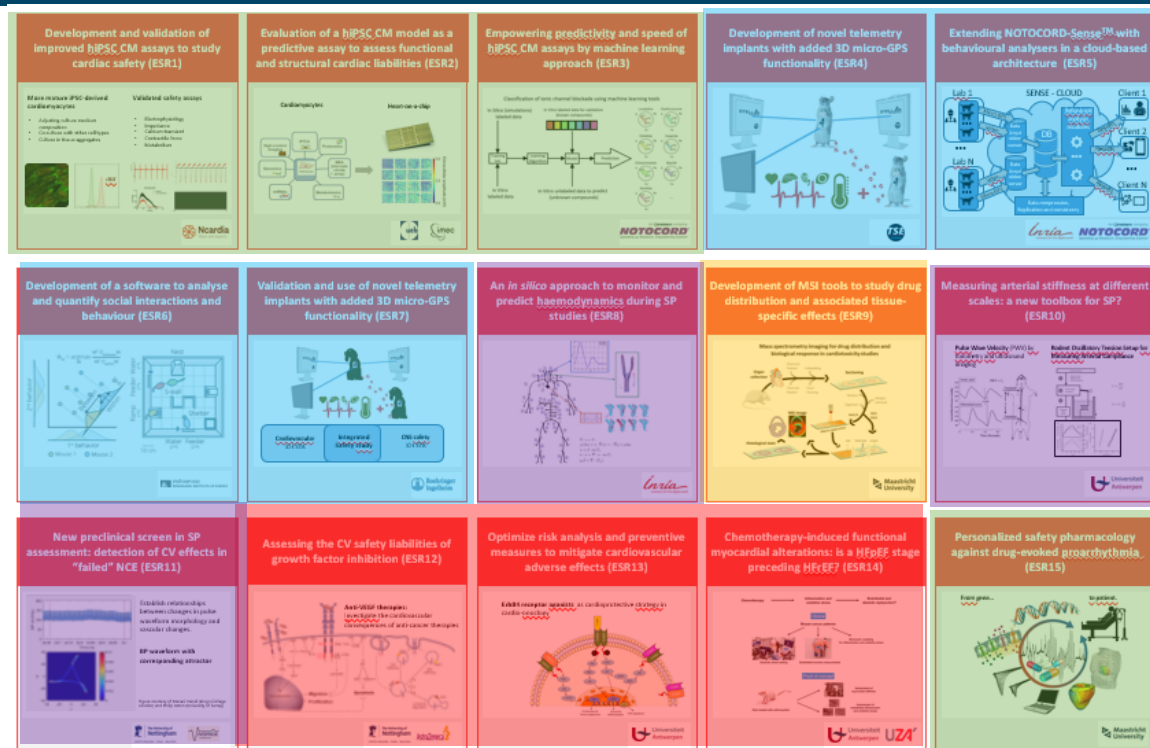


III. Project scope



- Opportunity to **explore technological** advancements to further **refine** safety pharmacology assays
- Need to train a **future generation** of safety pharmacologist.

IV. ESR positions & clusters



Explore technology to further refine safety pharmacology assays.

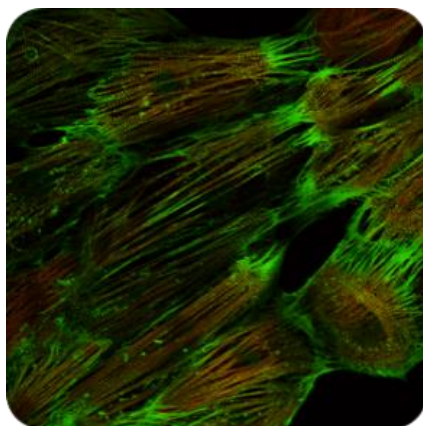
1. **hiPSC CM assays**
2. **Hardware/software innovation for non-invasive haemodynamic evaluation.**
3. **Alternative haemodynamic markers.**
4. **Mass Spectrometry Imaging (exposure – PBPK modelling)**
5. **Cardio-oncology / long-term toxicology**

Train future generation of safety pharmacologist.

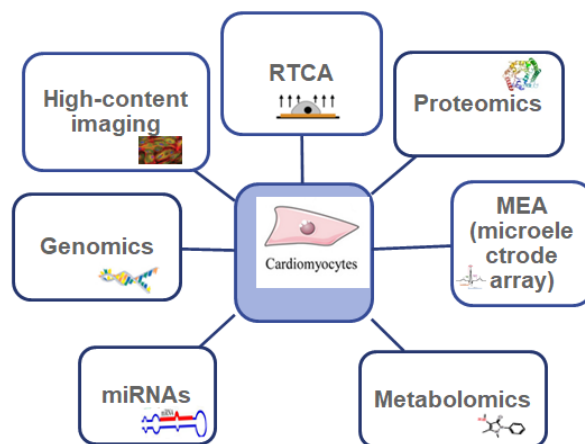
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1. hiPSC cardiomyocyte assays

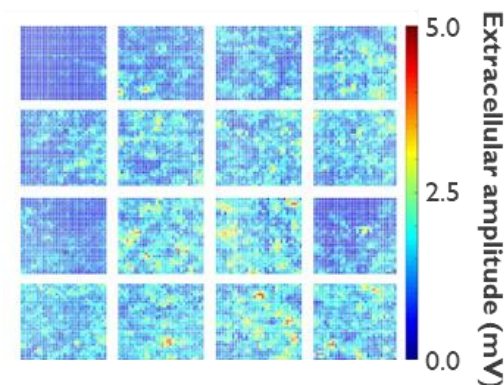
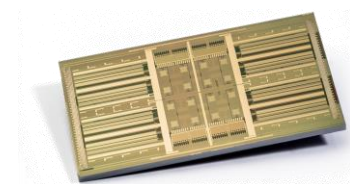
Cardiomyocyte
maturation &
3D (co)culture models



Integrated functional
& molecular assays

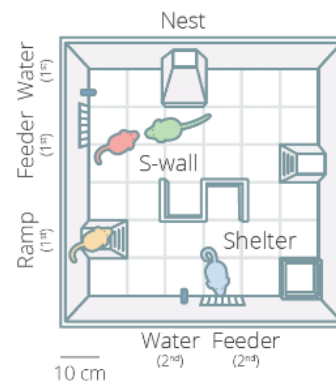
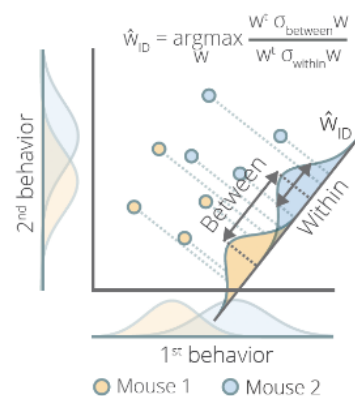
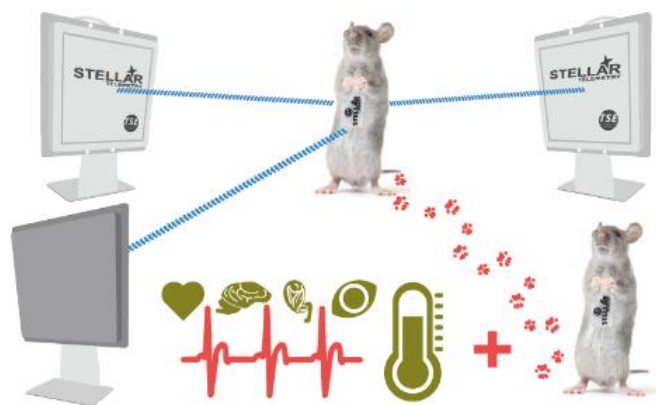


Heart-on-chip (microfluidics)
& data analysis



2. Technology for refinement of haemodynamic evaluation

Novel hardware & software solutions



מכון ויצמן למדע
WEIZMANN INSTITUTE OF SCIENCE

3. Refinement haemodynamic markers

Novel markers or
analysis methods

Mathematical
in silico modelling

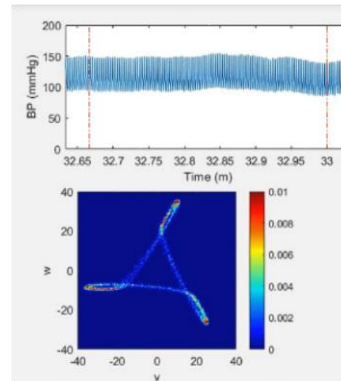
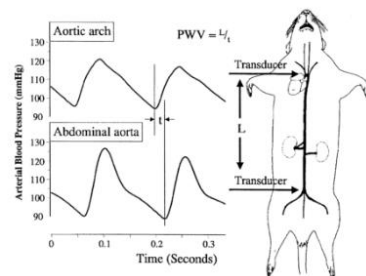
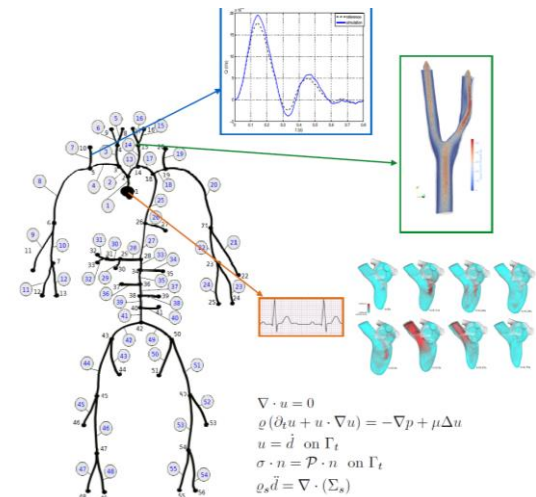
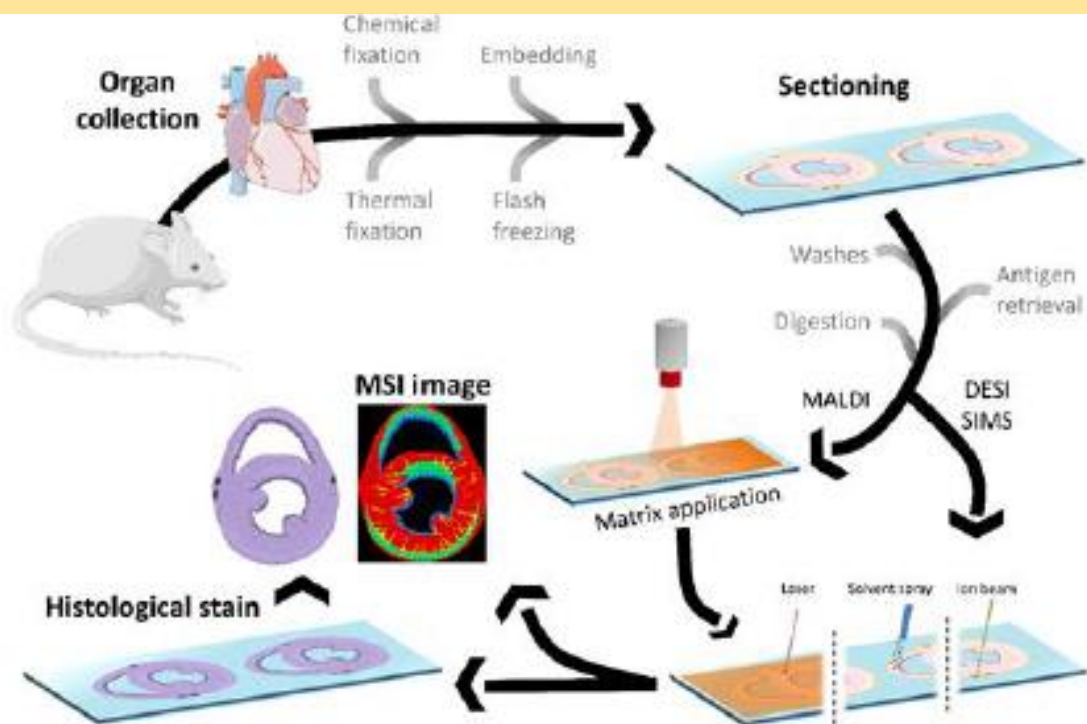


Figure courtesy of Manasi Nandi (King's College London) and Philip Aston (University of Surrey)



4. Drug exposure & proteomics

Mass Spectroscopy Imaging for tissue exposure (metabolites; PBPK modelling) and proteomic analysis



5. Cardio-Oncology research

Translational research on Cardio-Oncology – strategies for long-term safety/toxicology evaluation and risk mitigation

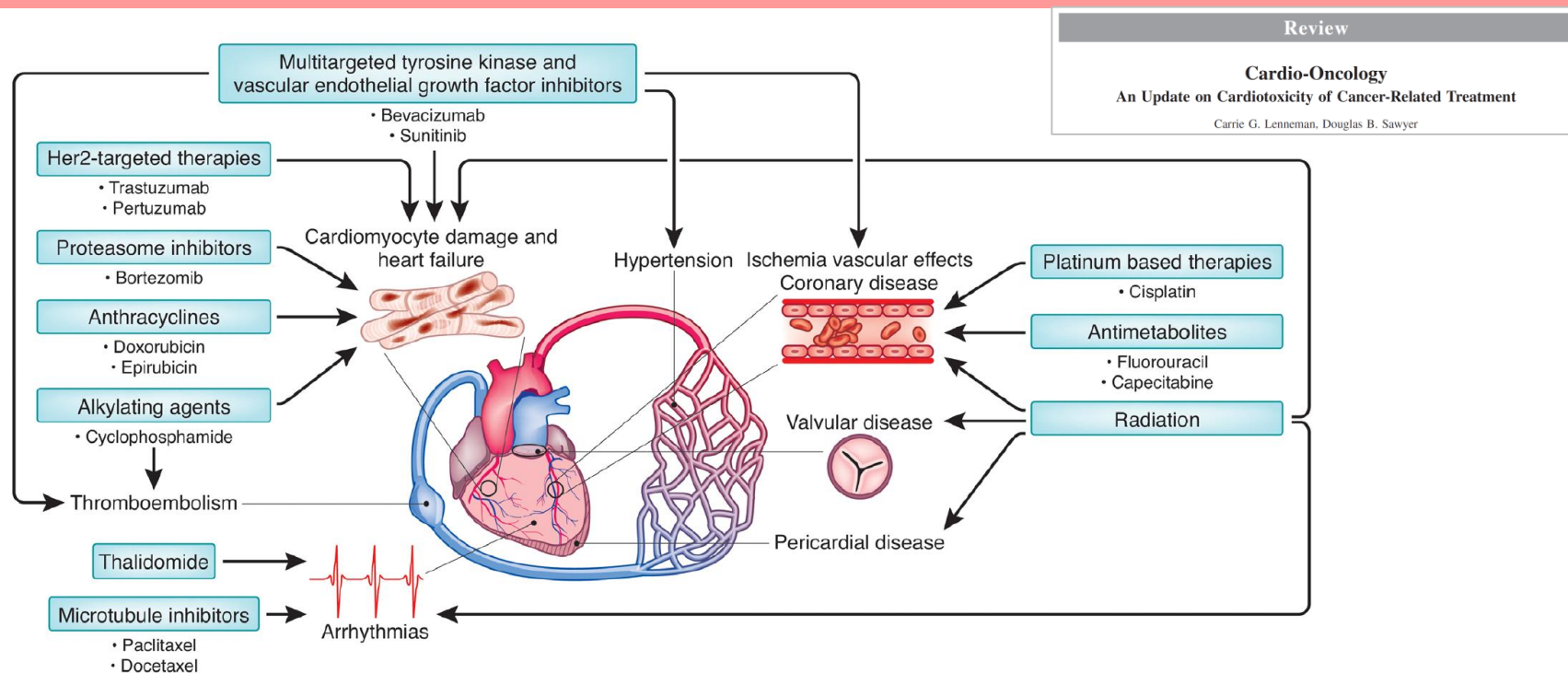
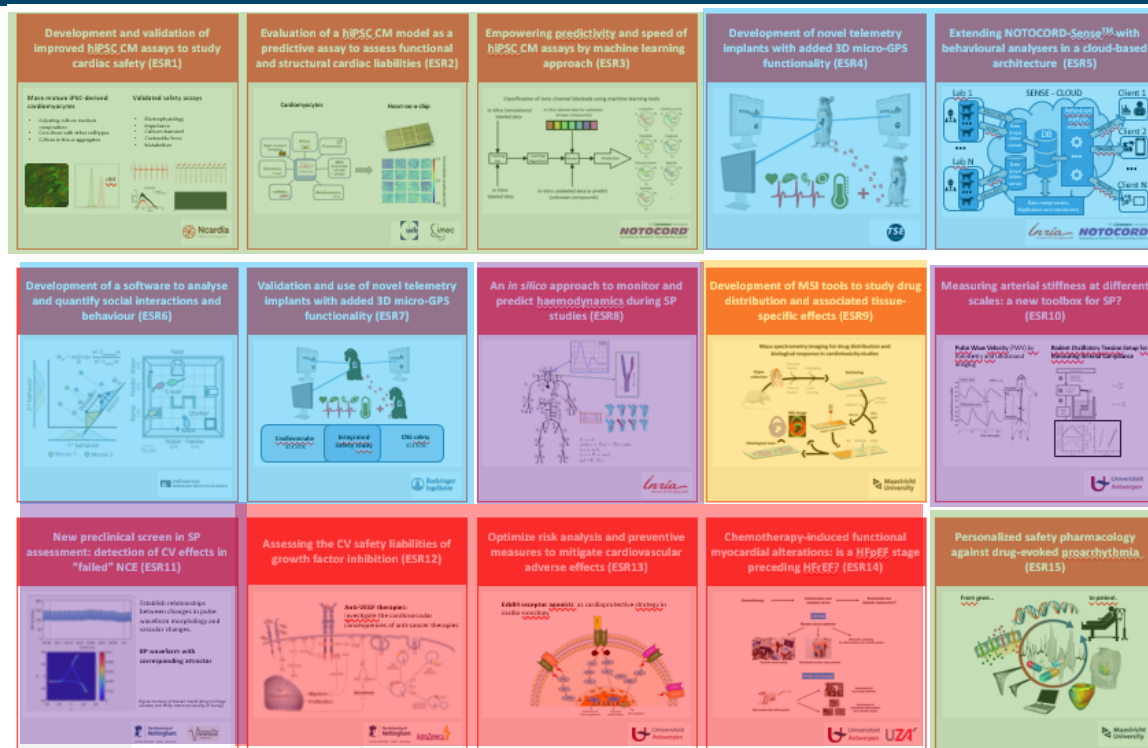


Figure 1. An overview of the cardiovascular side effects of chemotherapy and radiation.

IV. 15 ESR positions & 5 clusters



Explore technology to further refine safety pharmacology assays.

- **hiPSC CM assays**
- **Hardware/software innovation for non-invasive haemodynamic evaluation.**
- **Alternative haemodynamic markers.**
- **Mass Spectroscopy Imaging (exposure – PBPK modelling)**
- **Cardio-oncology / long-term functional toxicology**

Train future generation of safety pharmacologist.

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V. Training programme

*One of the drivers of the current SPS strategic plan was a recognition of an **impending mass retirement of experienced cardiovascular safety pharmacologists**, who need to be replaced at the early career level quite urgently to maintain the knowledge pool within the discipline globally and develop future leaders in the discipline.*



Job interview @ IKEA



V. Training programme

- **Training through Research**
 - Highly multidisciplinary
 - industry-academia-regulators-technology providers-...
 - secondments
- **Network-wide events**
 - Summer schools, workshops
 - Science + Business
- **Strategic Partners**
 - Safety Pharmacology Society
 - Annual Meetings, Webinars
 - DSP certification

