Paris, 14 October 2019

Actions Marie Sklodowska-Curie : ITN et RISE

Maxime CULOT
MCF au LBHE (EA-2465)

Experience sharing from MSCA-ITN projects

Université d'Artois
Faculté des Sciences J. Perrin - Lens

For the Scientific Part of the Talk:
Check our WebSite:

lb.h.e

UNIVERSITÉ D'ARTOIS

http://lbhe.univ-artois.fr

Marie-Curie ITN-ETN: BtRAIN 2016 - 2019

Brain Barriers Training

European PhD Training Network

H2020-MSCA-ITN-2015 675619

Marie Skłodowska-Curie actions
Research Fellowship Programme

12 ESRs

- **Training**
- **Research**

- **Focus = Brain Barriers**

- **Coordinated by Uni Bern**

BtRAIN coordinator:
Prof. Britta Engelhardt
Theodor Kocher Institute
CH-Bern

Brain Barriers Training

European PhD Training Network

H2020-MSCA-ITN-2015 675619

Marie Skłodowska-Curie actions

Research Fellowship Programme

BtRAIN

Brain Barriers Training

Participant Number	Organisation Short Name	Country	No of researchers
1	UNIVERSITAET BERN	CH	2
2	Goethe University Frankfurt	DE	1
3	IFOM FONDAZIONE ISTITU	IT	1
4	ULB	BE	1
5	MTA SZBK	HU	1
6	UNIVERSITE D'ARTOIS	FR	1
7	UHEI	DE	1
8	EPFL	CH	1
9	VU/VUmc	NL	1
10	OU	UK	1
11	GXP	DE	1

Britta britta.engelhardt / Remy Bruggmann

Stefan Liebner

Elisabetta Dejana / Monica Giannotta

Benoit Vanhollebeke

Maria Deli

Maxime Culot: LEADER WP1 (= SCIENTIFIC STUFF)

Tobias Tenenbaum

Harm-anton Klok

Helga De Vries

Nacho Romero: **OPEN UNIVERSITY (= Training)**

Peter winter **= SME**

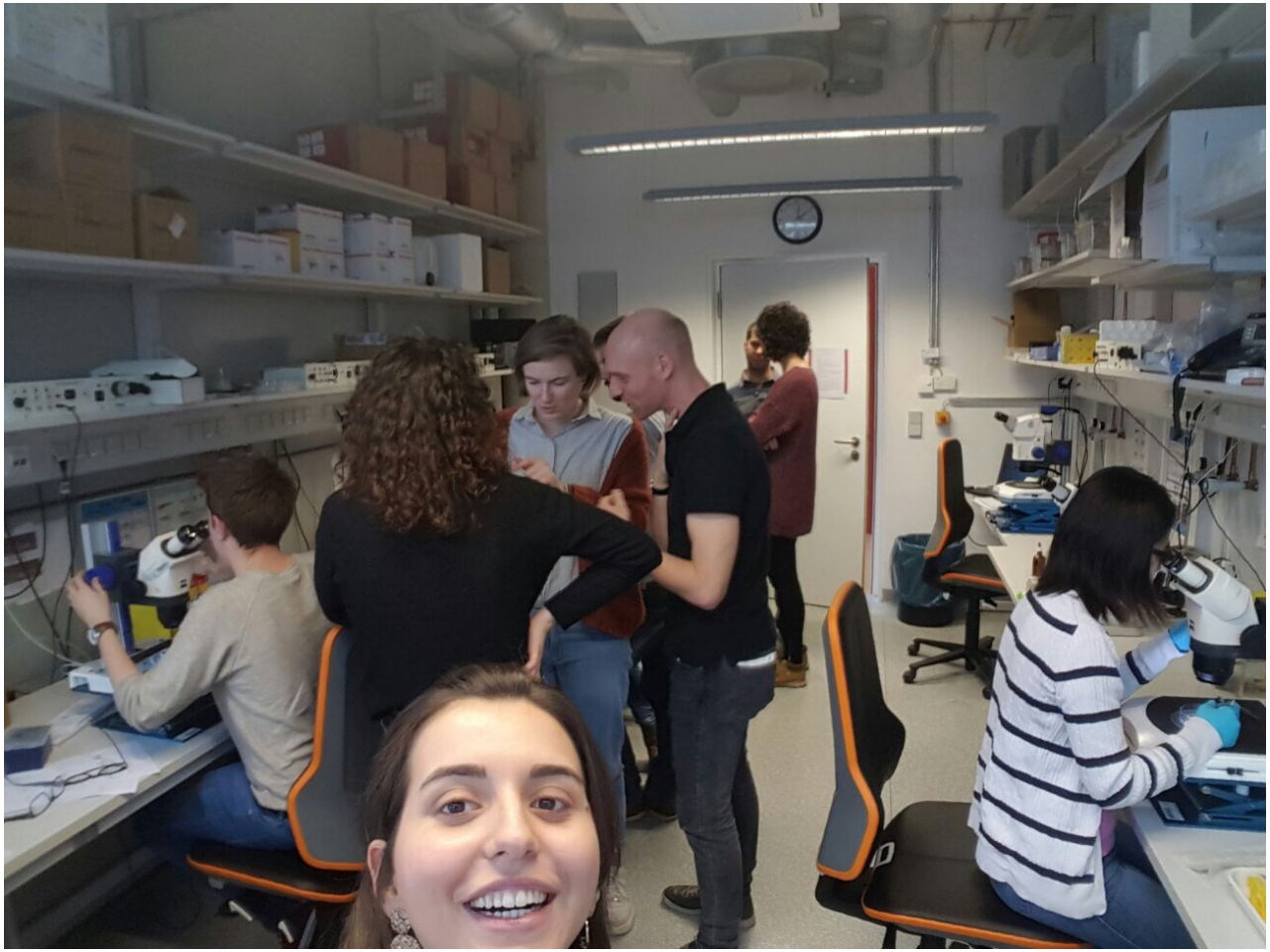
ESR Recrutement @University of Artois

Blood-brain barrier laboratory

BtRAIN

Brain Barriers Training

Training of 12 Excellent phD students: Working hard :



Marie-Curie ITN-ETN: In3 (2017-2020)

Integrated in vitro & in silico tools

European PhD Training Network

H2020-MSCA-ITN-2016

Marie Skłodowska-Curie actions
Research Fellowship Programme

15 ESRs

Training + Research

Focus = Alternative Toxicology

Coordinated by Vrije Universiteit , Amsterdam

In3 coordinator:
Prof. Paul Jennings

What is the aim of in3 ?

“To drive the synergistic development and utilisation of *in vitro* and *in silico* tools for human chemical and nanomaterial (NM) safety assessment. “

Who is in charge of in3?

Our Coordinator

Pr. Paul Jennings

Vrije Universiteit Amsterdam, NL

Project manager

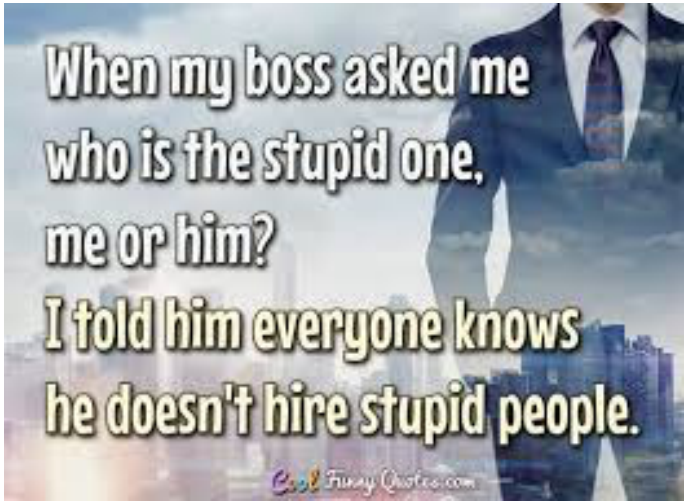
Dr. Ellen Langemeijer

Vrije Universiteit Amsterdam, NL

Training Coordinator

Dr. Maxime CULOT

University of Artois, France



Who are we in in3 ?

13 Beneficiaries

6 Universities

Vrjie Universiteit Amsterdam, Molecular and Computational Toxicology, Pr. Paul Jennings. Coordinator.
Université d'Artois, France. BBB Laboratory. Dr. Maxime Culot
University of Lausanne, Switzerland. Dr. Marie-Gabrielle Zurich
University of Leuven, Leuven, Belgium. KU Leuven Stem Cell Institute, Pr. Catherine Verfaillie
Liverpool John Moores University, United Kingdom. School of Pharmacy. Pr. Mark Cronin
Universiteit Utrecht, The Netherlands. Institute for Risk Assessment Sciences Dr. Nynke Kramer

3 governmental institutions

Department of Health – Public Health England, United Kingdom. Toxicology Dept. Dr. Martin Leonard.
Instituto di Ricerche Farmacologiche Mario Negri, Italy. Environmental Health Sciences Pr. Emilio Benfenati
National Institute of Chemistry, Ljubljana, Slovenia. Laboratory of Chemometrics. Pr. Marjana Novič

4 SMEs

Douglas Connect, Switerland. Dr. Barry Hardy / Dr. Thomas Exner
Evercyte GmbH, Austria. Dr. Regina Grillari / Dr. Giovanni Grillari
BIOTALENTUM, Hungary. Pr. Andras Dinnyes
Newcells Biotech, United Kingdom. Pr. Lyle Armstrong

5 Partner organisations

Center for Alternatives to Animal Testing – EUROPE, Universität Konstanz, Germany. Dr. Mardas Daneshian
ECVAM, Italy. Institute for Health and Consumer Protection, JRC. Dr. Anna Price
European Society of Toxicology in vitro, Pr. Mathieu Vinken
L'Oreal, France. Dr. Gladys Ouedraogo
TissUse, Germany. Dr. Uwe Marx

Academic and governmental

Companies

Organisations

Our ESR (Mobility rule)


Ivo Djidrovski


Sreya Ghosh


Cormac Murphy


Vidya Chandrasekaran


Susana Proença


Zahra Mazidi


Nicoleta Spinu


Aurore Bourguignon


Leonie Fransen


Liadys Mora Lagares


Sara Wellens


Pranika Singh


Carolina Nunes

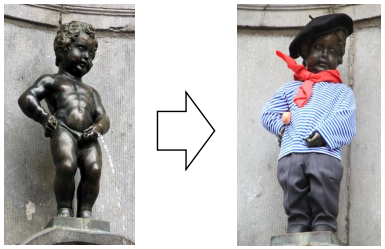

Ana Yisel Caballero


Kristijan Vukovic

dedicated, motivated, dynamic, passionate, hard working, intelligent, fun, social, responsible, diverse

In Vitro

In Silico



Training content and structure

Block 1: Learning by Research
- ESRs research project
- Secondments to SMEs and other academic partners

Block 2: in3 virtual laboratory
- Collaboration with other ESRs in tasks
- Virtual Journal Club
- On-line reporting and presentations
- Data sharing
- Scientific paper writing

Block 3: Online learning
- 3Rs – from origins to implementation
- Regulation
- Hazard identification and risk assessment
- Chemical case studies
- Developmental biology and organogenesis
- Scientific writing, poster and oral presentations and grant writing

Block 4: On-site lecture and workshop series
- Adverse Outcome Pathway
- Good cell culture practice and iPSC
- In silico approaches
- Entrepreneurship and intellectual property
- Knowledge management and data integration
- Career development
- University doctoral programs

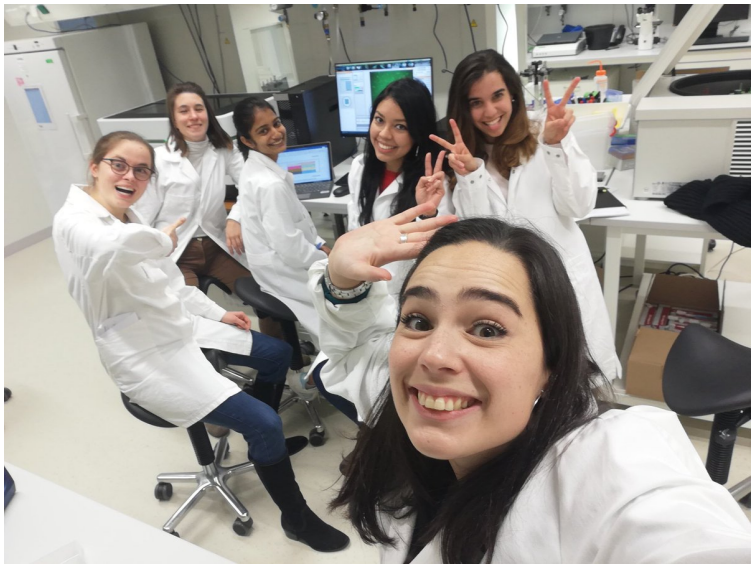
Block 5: Hands on technical workshops
- iPSC generation, culture and quality control.
- Toxicity assays.
- Methods for gene editing and reporter introduction.
- Nanomaterial manufacturing and characterisation.
- High content imaging.
- Modelling epithelial/endothelial transport.
- Software training course.
- Building AOPs and OECD guidelines

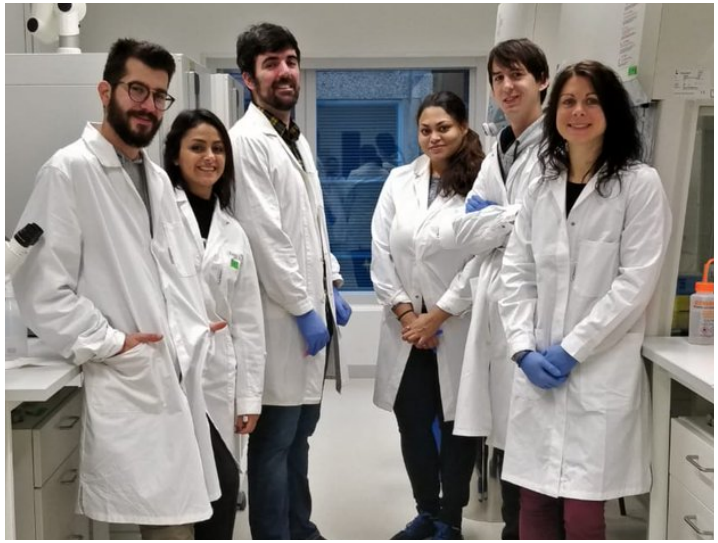
Block 6: Communication and Dissemination
- Interaction and communication with in3 network
- Dissemination to scientific community
- Communication with public

MARIE CURIE ACTIONS

"The scientists trained within in3 will acquire a unique multidisciplinary skill set and will be uniquely placed to support these activities in academia and industry within their future careers, giving them a competitive advantage and creating a project legacy"

HOT1: Building AOPs and the use of the AOP wiki / OECD Toolbox.
Liverpool John Moores University, United Kingdom. July 2018.





HOT 2: Toxicity assays. VU Amsterdam, The Netherlands.
November and December 2018.

HOT 3: Transport of compounds across barriers, BBB lab, Universite d'Artois, France. June 2019.

Next generation:

On 25 and 26 September 2019, Science is Wonderful will display Marie Skłodowska-Curie Actions in Brussels, including Sara Wellens work on the BBB from the in3 project.

The in3 writing Story…..

FP7 – Predict iv: 2008 - 2013

SEVENTH FRAMEWORK PROGRAMME

In vitro toxicologist driven

Martin Leonard
DPHE – Lung
Public Health England

Maxime CULOT
UART – CNS / BBB
UNIVERSITÉ D'ARTOIS

Paul Jennings
IMU – Kidney
MEDIZINISCHE UNIVERSITÄT
INNSBRUCK

A task force was born….

Several proposals submitted in 3 years: ITNX2; ANR/FWF x3; H2020 X2

MSCA ITN-ETN 2015: Submission of ITACA Project

Evaluation Results: Total Score 75% (Threshold 70/100%)

Criteria 1: Excellence - Score: 3.50 (Threshold 0- 5 ; Weight 50%)

Criteria 2: Impact - Score: 4.20 (Threshold 0- 5 ; Weight 30%)

Criteria 3: Implementation - Score: 3.70 (Threshold 0- 5 ; Weight 20%)

FFR

10 - 9

RBS 6 NATIONS rbs6nations.com

M. CULOT & P. Jennings (in3 Coordinator) Stade de France Fevrier 2016

Come back next year with a new coach, a stronger team, and a better strategy

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Weaknesses Exellence

The innovative aspects of the proposal are limited: the objectives lack specificity ……

In3 leverage on ongoing projects (+ innovative, + Specific, maximise the use of fundings)

- The training strategy does not make provision for soft skills across the network and does not sufficiently involve potential add on benefits specific for industrial partners.
- The strong focus on usable results leads to some Ph projects which are not hypothesis driven and thus lack an important aspect of science

In3 involved 4 SMEs as beneficiaries = not as service providers but as real partners

Weaknesses Implementation

The ESR´s research projects have different quality and are not of equal strength
The development of personal career development plans is not foreseen as a deliverable
The scientific deliverables are not sufficiently described
The commitment of the partner organizations to the proposal is not sufficiently emphasized ….

In3 Scientific objectives are adressing P.O needs (Future ESR employers)

Playing with iPSCs

Leverage on IMI Project = StemBANCC

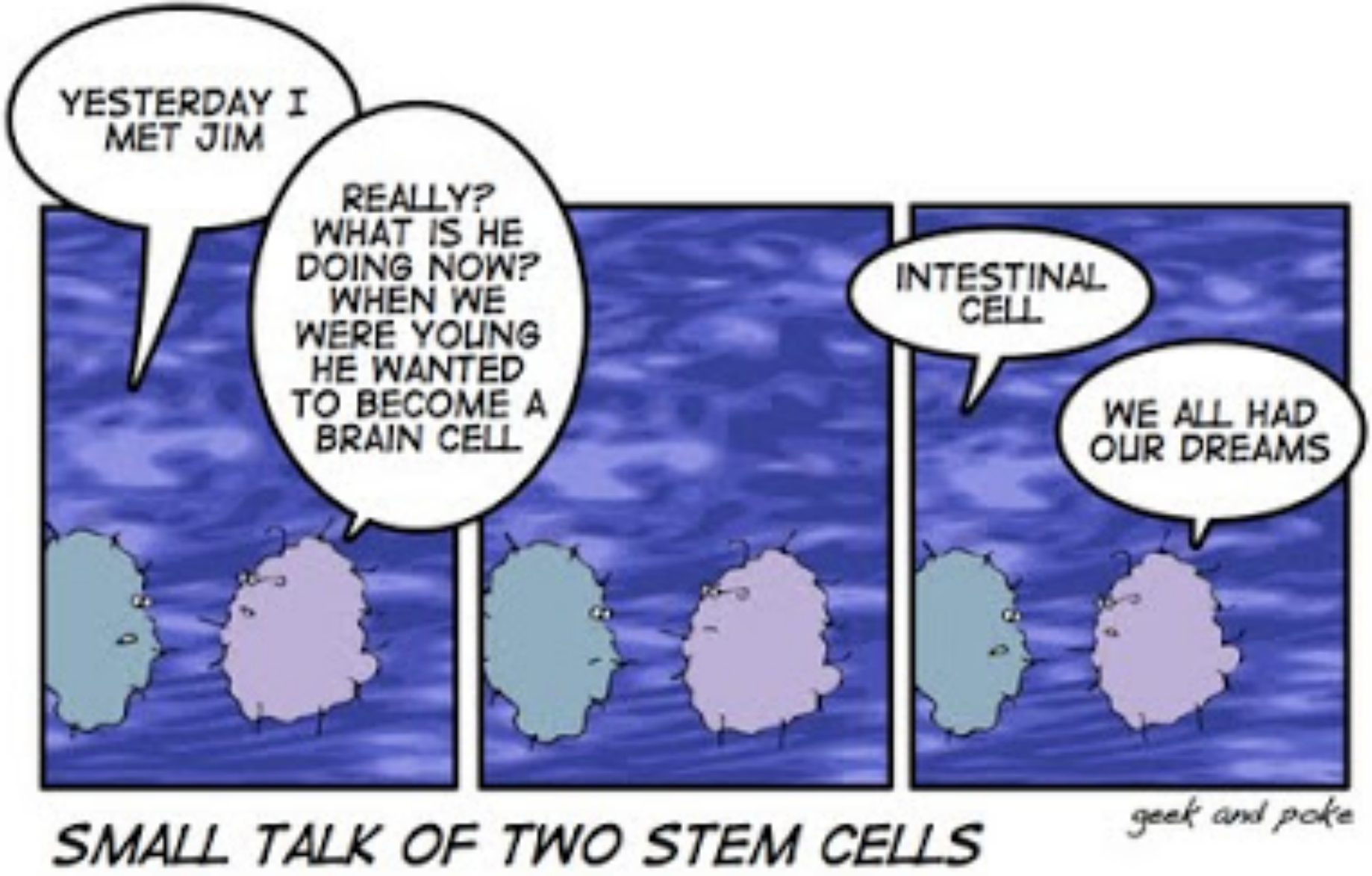

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Figure 2: Overview and content structure of the training programme

We are all too busy and that does apply to reviewers – So clarity is a key !!

Can a picture say more than a thousand words?

in3

integrated in vitro & in silico tools

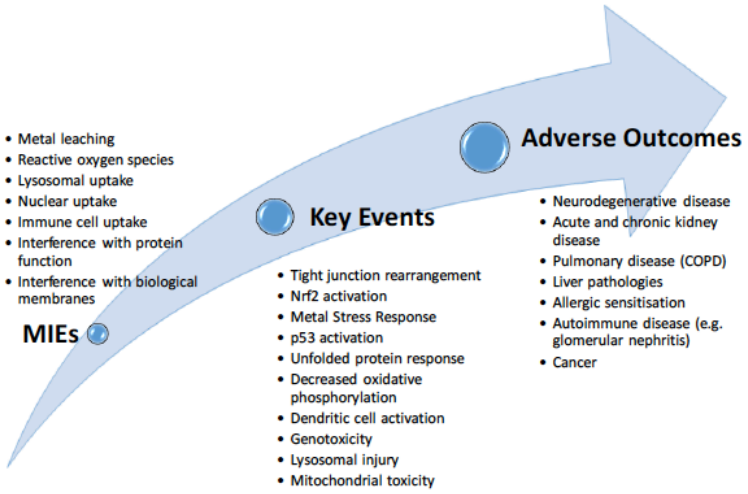

Figure 3 Theoretical NM induced MIEs, KEs and adverse outcomes

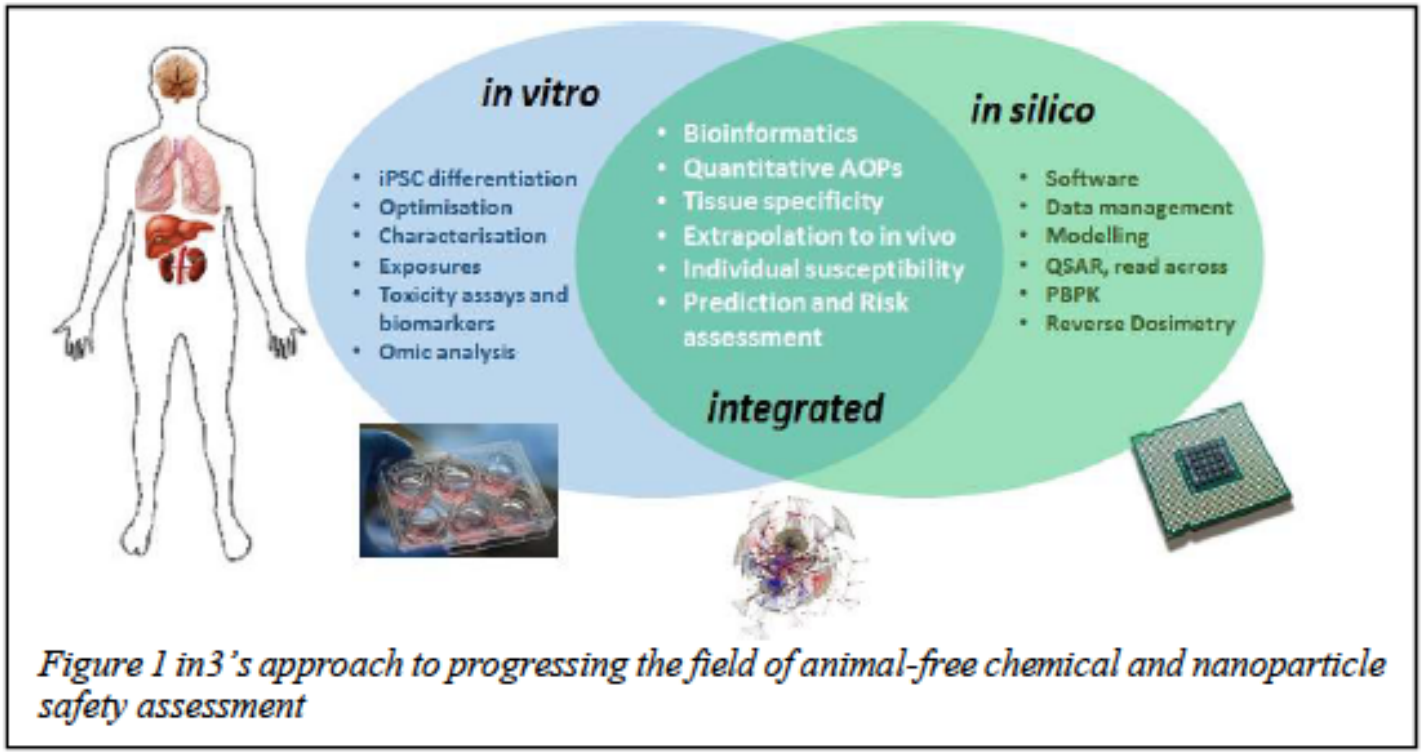

Figure 1 in3's approach to progressing the field of animal-free chemical and nanoparticle safety assessment

MSCA ITN-ETN 2016: Submission of in3 Project

Evaluation Results: Total Score 95.6% (Threshold 70/100%)

Criteria 1: Excellence - Score: 4.80 (Threshold 0- 5 ; Weight 50%)
Criteria 2: Impact - Score: 4.80 (Threshold 0- 5 ; Weight 30%)
Criteria 3: Implementation - Score: 4.70 (Threshold 0- 5 ; Weight 20%)

Marie-Curie ITN-ETN: NanoSTEM 2018 - 2021

H2020-MSCA-ITN-2017 764958

- **9 beneficiary institutions**
  - ✓ Queen Mary University of London, United Kingdom
  - ✓ Centro Neurociencias e Biologia Celular, Portugal
  - ✓ **Universite d'Artois, France**
  - ✓ Karolinska Institutet, Sweden
  - ✓ MJR PharmJet GmbH, Germany
  - ✓ University of Birmingham, UK
  - ✓ Universität Innsbruck, Austria
  - ✓ Helmholtz Zentrum München, Germany
  - ✓ Centro Hospitalar e Universitário de Coimbra, Portugal
- **5 partners organizations**
  - ✓ HCS-Pharma, France
  - ✓ SANOFI, France
  - ✓ Saarland University, Germany
  - ✓ Brains for Brain, Italy
  - ✓ Instituto de Ciências Neares Aplicadas à Saude, Portugal
- **14 Early Stage Researchers (ESR)**

NanoStem coordinator:
Prof. Marina Resmini
Queen Mary University of London, United Kingdom

ESRs meeting in London

ITNs impact on BBB Lab

Marie-Curie ITN-ETN-2020

12 Oct 2019
@ Chelsea Pub in Linz, Austria

But also..
First Writting Session of *IDEA* new ITN proposal to be submitted in january

Deadline for submission is 14 January 2020, 5:00 pm Brussels time.