



European Training Network
in Safety Pharmacology

SUMMER SCHOOL 2021

SAFETY PHARMACOLOGY IN DRUG DEVELOPMENT

30 Aug. - 3 Sept. | Antwerp City Campus

Rodestraat 14, 2000 Antwerp

Building R, second floor, rooms R.218 and R.219

Antwerp Summer University

www.uantwerpen.be/inspire



Universiteit
Antwerpen



Maastricht
University



Boehringer
Ingelheim



The University of
Nottingham

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inria
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Ncardia
Stem cell experts



An Qinstem company
NOTOCORD
Speeding up Research, Empowering Science



מכון ויצמן למדע
WEIZMANN INSTITUTE OF SCIENCE

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Research and Innovation Program under grant agreement No GA 858070



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WELCOME

We are pleased to welcome you to the second edition of the **INSPIRE Summer School**, organised under the umbrella of the **Antwerp Summer University**.

The INSPIRE Summer School 2021 offers an intensive 5-day programme on Safety Pharmacology in Drug Development. Built as a highly interactive and multidisciplinary training, it consists of theoretical lectures on cardiovascular safety pharmacology, complemented with sessions on cross-cutting topics such as entrepreneurship, communication skills and research integrity.

In this brochure, we provide you with practical and substantive information regarding this summer school. For any additional questions, you can contact us via email to INFO.INSPIRE@uantwerpen.be or by phone T. +32 3 265 27 07.

We wish you an interesting summer school and an unforgettable experience!

Prof. Pieter-Jan Guns, Scientific Coordinator of the INSPIRE Project
Paz Yanez-Murillo, Project Manager of the INSPIRE Project

Promotional video prepared by the early-stage researchers of the INSPIRE project
(click on the image to watch)



SCHEDULE

Hours in CET

MONDAY, AUG 30

09.00 AM - 12.30 PM

hiPSC-based assays and their relevance to drug discovery

Dr. Elena Matsa, Ncardia

Dr. Georgios Kosmidis, Ncardia

Dr. Stefan Braam, Ncardia

01.30 PM - 05.00 PM

An introduction to Entrepreneurship: obtaining an entrepreneurial mindset and creating value with your ideas

Prof. Dr. Robin De Cock, University of Antwerp

TUESDAY, AUG 31

09.00 AM - 12.30 PM

The science of selling (theory): basic principles of 'selling'

Dr. Bruno Hoste, Consultant ZOOON

01.30 PM - 05.00 PM

The science of selling (practice): put the principles into practice

Dr. Bruno Hoste, Consultant ZOOON

WEDNESDAY, SEPT 1

09.00 AM - 12.30 PM

In-vivo animal experimentation in drug discovery

Dr. Georg Rast, Boehringer Ingelheim Pharma GmbH & Co. KG

01.30 PM - 05.00 PM

Workshop "Selling Science" (hands-on session)

Dr. Bruno Hoste, University of Antwerp

THURSDAY, SEPT 2

09.00 AM - 12.30 PM

Signal/data processing and visualizations in drug discovery

Dr. Sylvain Bernasconi, NOTOCORD

01.30 PM - 05.00 PM

An introduction to Entrepreneurship: designing business models and capturing value

Dr. Robin De Cock, University of Antwerp

FRIDAY, SEPT 3

09.00 AM - 12.30 PM

Translational in-vivo CV studies

Prof. Dr. Paul G.A. Volders, MD, University of Maastricht

01.30 PM - 05.00 PM

Research Integrity, including the *Dilemma Game*

Prof. Dr. Sabine Van Doorslaer, University of Antwerp

THEORETICAL LECTURES

hiPSC-based assays and their relevance to drug discovery

Dr. Elena Matsa, Director Discovery Technology at Ncardia

Dr. Georgios Kosmidis, Senior Scientist at Ncardia

Dr. Stefan Braam, CEO of Ncardia

Learning outcome: Basic introduction to hiPSC: general principles of generation, differentiation, and applications in Safety Pharmacology | Advanced integrated hiPSC-based assays: validation and challenges | Large scale production and associated ethical aspects | Future perspectives of hiPSCs | Brief historical outline of Ncardia: a successful business model of process development, scalable manufacturing and commercialization of hiPSC.

In-vivo animal experimentation in drug discovery

Dr. Georg Rast, Drug Discovery Sciences, Boehringer Ingelheim Pharma GmbH & Co. KG

Learning outcome: Why animal experimentation is essential in drug discovery? | Classification of in-vivo tests and suitable animals to perform these | Overall predictive value of animal testing, including study design and performing | Regulatory framework: GLP compliance, ethical aspects and 3Rs | Learning from a case study.

Signal/data processing and visualizations in drug discovery

Dr. Sylvain Bernasconi, Operations Manager & Product Director, Safety Pharmacology at NOTOCORD

Learning outcome: Physiological signals analysis and interpretation | Displays , graphs and charts: how to choose the right ones | Data acquisition requirements depending on analysis objectives | Introduction to the architecture of NOTOCORD software: look and feel | Applications of signal processing: a review of case studies (ECG, BP, LVP, HRV, etc.) | Regulatory framework: software usage in a GLP environment.

Translational in-vivo CV studies

Prof. Dr. Paul G.A. Volders, Professor of Genetic Cardiology and Principal Investigator at CARIM, School for Cardiovascular Diseases, Maastricht University Medical Centre+

Learning outcome: Translational research: focus on the patient | Clinical management of patients representing with arrhythmia | Challenges in Cardio-oncology | Insight in the correlation between in-vitro and in-vivo and translation to clinical studies | Genotype – phenotype relationships and personalized medicine approach | Can in silico modelling help to bridge the gap? | Regulatory framework in human studies: handling patients data | Workshop on clinical cases.

TRANSFERABLE SKILLS

An introduction to Entrepreneurship

Prof. Dr. Robin De Cock, Professor of Innovation and Entrepreneurship and Academic Director of the Master in Innovation & Entrepreneurship at the Antwerp Management School

Session 1. Obtaining an entrepreneurial mindset and creating value with your ideas

Description: In this session, we will give you an introduction on entrepreneurship and show you what it means to obtain an entrepreneurial mindset. We'll give insights into the first steps that you need to undertake when you want to create value with your entrepreneurial ideas in order to gradually move to a strong technology-market fit.

Session 2. Designing business models and capturing value

Description: Having a strong technology-market fit is one thing, designing a strong business model around it another. In this session, we will learn to design a business model and explore different ways to capture the value of your ideas. We prepare you to face potential investors and stakeholders by explaining the different components of a business plan.

The Science of Selling: basic principles of 'selling' (theory) and put the principles into practice (practice)

Dr. Bruno G.M. Hoste, Consultant ZOOON

Description: This training will consist of two parts. The first part will be a theoretical session aimed to introduce the basic "selling principles", including references to literature and facilitating an interactive discussion around this topic. A second part will be focused on how to put the "selling principles" into practice, including few case studies.

Workshop "Selling Science"

Dr. Bruno G.M. Hoste, Research Manager of Life Sciences at the Grant Office, Department of Research Affairs & Innovation, University of

Description: During this session, the participants will receive advice on how to apply the acquired knowledge of the course "The Science of Selling" in a scientific context by performing a proposed assignment. It is necessary to follow the previous course before participating in this session. Upon registration for selection and on a 'first-come, first-served' basis, ten participants will compete with a 5-minute 'presentation' (if using slides: 5 slides max.) introducing a scientific paper to a non-expert audience, e.g. children, (grand)parents or best friends. A hands-on feedback and training moment will be organized and a **best presentation award** will be foreseen.

TRANSFERABLE SKILLS

Research Integrity

Prof. Dr. Sabine Van Doorslaer, Professor at the Department of Chemistry, University of Antwerp. Member of the Flemish Commission for Scientific Integrity

Description: In a first part, the topic of scientific integrity and scientific ethics will be introduced starting from the ALLEA code. Some examples will be given of scientific misconduct cases involving 'FFP' (fabrication, falsification and plagiarism), but also those that can be categorized in the 'grey zone' of sloppy science. The participants will be asked to reflect on some of these cases and will be asked to reflect on how they would react under these circumstances. Some of the reasons why scientists shift to unethical behavior and scientific misconduct will also be discussed. Finally, a number of the measures that are taken on national and European levels will be pointed out. In a second part, an adapted version of the Dilemma Game on Scientific Integrity developed at the Erasmus University of Rotterdam will be used to confront the participants with common dilemmas on science integrity.

ASSIGNMENTS

ASSIGNMENT 1

WATCHING THE MOVIE "ON BEING A SCIENTIST"

Description: In preparation for the session on "Research Integrity" on Friday, September 3, you need to watch the fictional film "On being a scientist" (56 min), developed by the Centre for Innovation, Leiden University. (link: <https://www.youtube.com/watch?v=tCgZSjoxF7c>)

Deadline: before **Friday, September 3**.

ASSIGNMENT 2

PREPARING A RESEARCH PRESENTATION

Description: Prepare a 8-10 slide presentation describing the status of your research. INSPIRE ESR fellows shall include the scientific plan for year 2022 and an update of their secondments' plan. Since they will have to present during the INSPIRE Annual Meeting 2021 (September 6-7), the room C.003 will be made available on Saturday, September 4 (full day), to allow rehearsals.

Delivery: to be sent to info.INSPIRE@uantwerpen.be before **Sunday, September 5**.

ASSIGNMENT 3

SELLING SCIENCE

Description: Each participant will prepare a 5-min presentation (5 slides) introducing a scientific paper related to his/her research topic to a non-expert audience, e.g. children, grandparents or friends. Those participants interested in performing the presentation and having chances to win a "prize" have to register by sending the title of their presentation to info.INSPIRE@uantwerpen.be no later than August 27 (**limited places!**). Please subscribe as soon as possible.

Delivery: to be sent to info.INSPIRE@uantwerpen.be before **Wednesday, September 1**.

ASSIGNMENT 4

BUSINESS PLAN

Description: In teams of 2-3 persons, you will revise a real-life business plan of a start-up company. The business plan will be presented in the first session (Monday, August 30) where we will discuss the different questions that you need to tackle in your assignment.

Delivery: to be sent to info.INSPIRE@uantwerpen.be before **Thursday, September 2**.

ASSIGNMENT 5

UPDATE PCDP

Description: It's time to prepare or update your Personal Career Development Plan (PCDP). Please find the template with the guidelines on Blackboard > course material > assignments.

Delivery: The PCDP must be sent to info.INSPIRE@uantwerpen.be by Monday, **September 27**. All INSPIRE ESR fellows need to make sure that the PCDP is reviewed and approved by the respective supervisor(s) before submission.

MATERIAL & CERTIFICATES

COURSE MATERIAL

All the supporting material for participants, as well as the slides of the lectures will be shared on the section 'Course Materials' on the digital learning environment VICE Blackboard.

VICE BLACKBOARD

The interface platform for communication and material sharing will be VICE Blackboard, the digital learning environment of the University of Antwerp. Participants with a UAntwerp account can access the course via their regular Blackboard environment, and using their regular log-in credentials. External participants need to access via <http://vice.uantwerpen.be>. The username and password will be given upon confirmation of the registration.

ECTS

Successful completion of the INSPIRE Summer School 2021 can be awarded with 3 credits according to the European Credit Transfer System (ECTS). Credits will only be awarded upon submission of all the assignments. Recognition of the credits in your home curriculum should be agreed upon with your home institution.

CERTIFICATES

The certificate of attendance will be provided to all participants in this summer school on the last day of training, September 3. The certificate of completion will be sent via regular post to those students interested in being awarded 3 ECTS.

VENUE

CITY CAMPUS, UNIVERSITY OF ANTWERP

The INSPIRE Summer School 2021 will be held at the City Campus of the University of Antwerp, which is a combination of both historic and modern buildings located in the heart of Antwerp city center. Some of the buildings date from the 16th-century. The City Campus also has plenty of modern workspaces, but they're not just for studying: these places are hubs for knowledge exchange, reading and reflection, and social contact.



All the sessions will be given at:

Building R (Rodestraat 14, 2000 Antwerp), second floor, rooms R.218 and R.219.



Internet access: you will be able to log in to the network of UA Antwerp by selecting the UA Antwerp wireless network on your device and logging in with the login and password provided at the start of the school. Alternatively you can use the [Eduroam network](#).

PRACTICAL INFORMATION

- **Getting there**

<https://www.uantwerpen.be/en/about-uantwerp/campuses/stadscampus/>

- **Traevl to Belgium during COVID-19 times**

<https://www.uantwerpen.be/en/study/programmes/antwerp-summer-university/practical-informatio/on-campus-during-corona/>

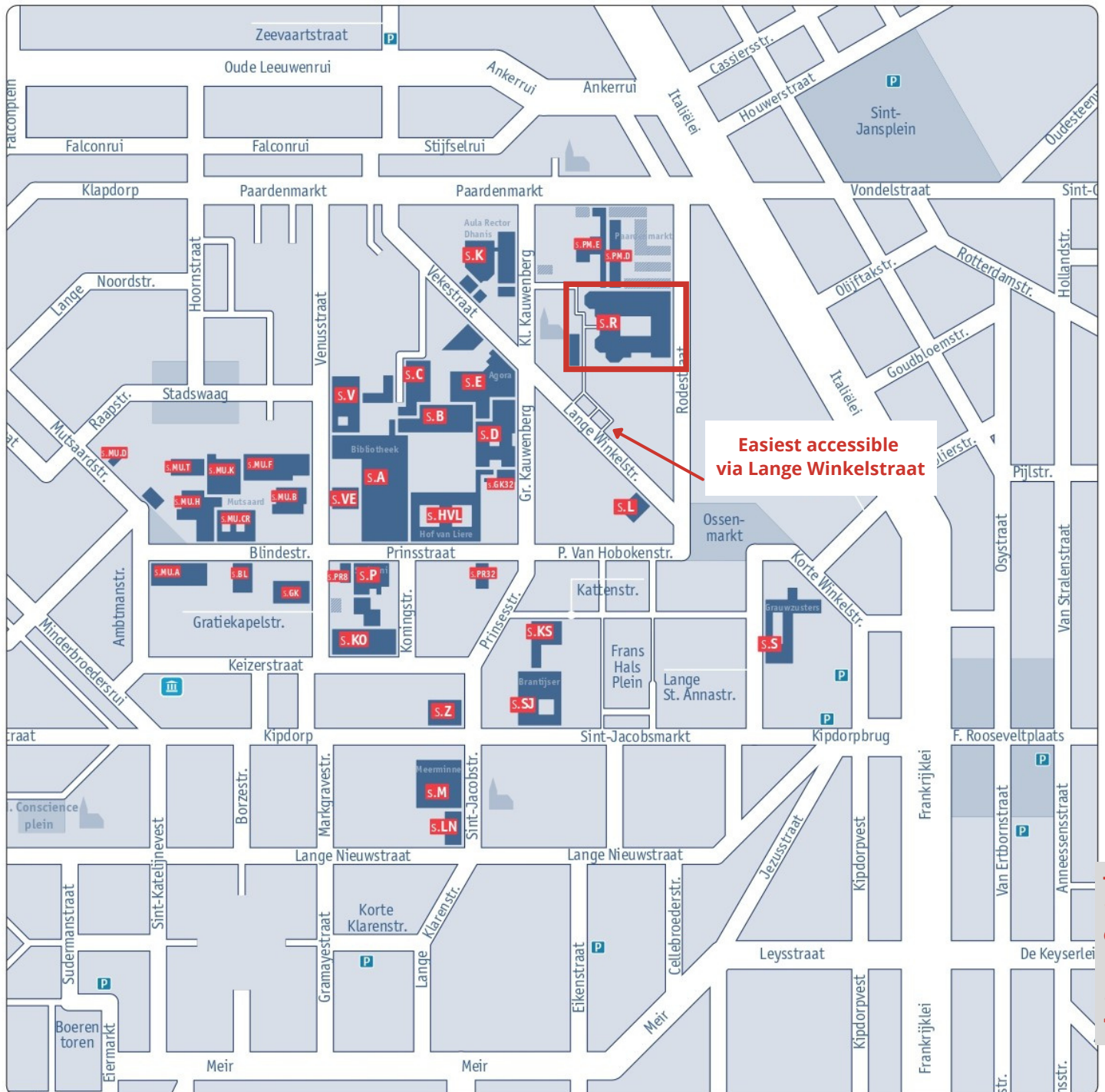
- **Your stay at the University of Antwerp**

<https://www.uantwerpen.be/en/summer-schools/inspire/your-stay-at-uantwer/>

VENUE

MAP OF CITY CAMPUS OF UNIVERSITY OF ANTWERP

Rodestraat 14, 2000 Antwerp, Building R, floor 2, rooms R.218 and R.219



ACCOMMODATION

SUGGESTED MIDRANGE HOTEL

IBIS ANTWERPEN CENTRUM* (11 min walking distance to the venue)**

Meistraat 39 - 2000 Antwerp

~85 EUR / night (city tax € 2.97 per person per night)

Cancellation policy: free cancellation up to 3 days prior to arrival.

Email address: H1453-SB@accor.com | **Tel:** +32 3 231 88 30

www.ibishotel.com

PARK INN BY RADISSON ANTWERP** (10 min walking distance to the venue)**

Koningin Astridplein 14, 2018 Antwerpen

~99 EUR / night breakfast included (city tax € 2.97 per person per night)

Cancellation policy: free cancellation up to 27 days prior to arrival.

Email address: info.antwerpen@parkinn.com | **Tel:** +32 3 202 31 70

www.radissonhotels.com

LEONARDO HOTEL* (10 min walking distance to the venue)**

De Keyserlei 59, 2018 Antwerpen

90 EUR / night breakfast included (city tax € 2.97 per person per night)

Cancellation policy: free cancellation up to 14 days prior to arrival.

Email address: info.antwerpen@leonardo-hotels.com | **Tel:** +32 3 232 14 43

www.leonardo-hotels.nl

BUDGET MINDED ACCOMMODATION

THE ASH - ANTWERP STUDENT HOSTEL (5 min walking distance to the venue)

Italiëlei 237, 2000 Antwerpen

Single rooms: 75€ per room per night / Double rooms: 85€ per room per night

Triple rooms: 90€ per room per night / 4- bed dorms: 105€ per room per night

Cancellation policy: free cancellation up to 60 days prior to arrival.

Email address: myreservation@ash-antwerp.com | **Tel:** +32 3 500 88 17

www.ash-antwerp.com

IBIS BUDGET ANTWERPEN CITY CENTER (20 min walking distance to the venue)

Lange Kievitstraat 145 – 2018 Antwerp

~68 EUR / night (city tax € 2.97 per person per night)

Cancellation policy: free cancellation up to 3 days prior to arrival.

Email address: H6192@accor.com | **Tel:** +32 3 202 50 20

www.ibis.com

GETTING AROUND

TRAMS AND BUSES

Antwerp has a dense public transportation network. Buses and trams are available to take you to many different parts of the city. More detailed information can be found on www.delijn.be. A single ticket within the city will cost you 3 EUR. It allows you to use public transportation (buses and trams) for one hour. You could also consider buying a Lijn card (10 rides for 16 EUR) or a day of unlimited travel (7,50 EUR). Tickets can be purchased in advance via de App, via the website <https://bit.ly/3rgdEBI> or at the sales points of the city <https://bit.ly/3yYqbfo>.

CYCLING, WALKING, SCOOTING AND RIDING

Antwerp is a bike-friendly city. The distances are not too large, the bike lanes are flat and with the right gear, you can cycle all year round.

Velo is Antwerp's metropolitan bike scheme, where you can pick up and drop off bicycles at various points whenever you like. The small bicycles have three speeds, anti-skid pedals and thick tires, so it's easier to avoid the tram tracks. In order to ride Velo you have to register beforehand. You can buy a day pass for 5 EUR or a week pass for 11 EUR. After purchasing a day of week pass, you can use the bikes for free for a maximum of 30 minutes per session, after which you need to wait at least 5 minutes to take a new bike. All information available on www.velo-antwerpen.be/en.

Cloudbike is a smart bike sharing platform. Users can download the Cloudbike application from the Google Play Store or Apple Store and create a user account. You can pay per ride for a minimum of 0,50 EUR for the first 10 minutes, each additional minute costs 0,05 EUR. You can purchase a 40 Minute Pass for 6 EUR, which includes unlimited rentals of maximum 40 minutes per ride during 24 hours. The surcharge for exceeding this 40 minute period amounts 0,05 EUR per extra minute cycled. A 24 Hour Pass allows you to use the service or keep your bike for 24 hours at the price of 13 EUR. Exceeding this 24 hour period results in a surcharge of 0,05 EUR per minute. All information available on <https://cloudbike.be/front-page-eng/>.

Bird is a reliable last mile electric scooter rental service. Users can download the Bird application from the Google Play Store or Apple Store and create a user account. Use the app to find the closest Bird and scan the QR code found on the steering wheel of each Bird scooter. Scanning this code unlocks the scooter for use. After your journey, leave the scooter in a place where it cannot obstruct traffic and end your journey in the App. All information available on www.bird.co.

SOCIAL PROGRAMME

In order to keep the spirits high and to give you an extra opportunity to get to know your classmates, a number of fun social activities will be organized during the afternoons and evenings. All activities are offered **free of charge**. Stay tuned by joining the social media channels of the Antwerp Summer University! ([Facebook Group](#) & [Instagram](#)).

Monday, AUG 30 / 19:00 | Dinner at Da Giovanni Ristorante Pizzeria: all the participants are invited to join us for a group dinner on the first day of the training. No registration is needed!
Meeting point: Jan Blomstraat 3, Antwerp



The following activities are also offered to participants of other summer schools. More details will be provided via e-mail a few days before each activity. **To secure your spot, please register by filling in this form:** <https://forms.office.com/r/VvMnDzqhNT>

Saturday, AUG 28 / 10:00 – 12:30 | City Walk: The Amazing Chocolate Tour: Chocolate is a Belgian invention from 1912. You will learn about the history of the 'praline' (filled chocolate) and get a chance to taste some of the most delicious pralines in the world! **(20 places)**

Meeting point: Grote Markt, in front of the City Hall.
Bring along: mouth mask,



Sunday, AUG 29 / 14:00 – 17:00 | Bike Tour "Beyond the City Center": Antwerp is more than the historical center. On this bike tour we will show you the 'real' Antwerp with its fascinating and colourful neighbourhoods. **(20 places)**

Meeting point: Steenplein 1. Square next to the slope up to the walking bridge.
Bring along: mouth mask, drinks & a snack. Bikes are provided.



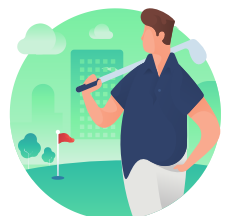
Tuesday, AUG 31 / 19:00 – 21:00 | City Walk "Street Art Antwerp Tour": A passionate tour guide will take you to giant murals and show you small, hard to find pieces of street art. You'll hear stories about how street art has developed in the city and find out all about the local and international artists and their works. **(15 places)**

Meeting point: The Rubens House, Wapper 9-11.
Bring along: mouth mask.



Thursday, SEPT 2 / 19:00 – 21:00 | City Golf Antwerp: Discover the highlights of 'Het Eilandje' during a round of city golf. A guide will take you to the most beautiful places in this neighbourhood, such as MAS or the Red Star Line. You take a golf swing at statues and fountains, while listening to stories about our city. **(25 places)**

Meeting point: Hanzestedeplaats 1. Entrance of MAS museum.
Bring along: mouth mask, drinks & a snack. Golf equipment is provided.



Saturday, SEPT 4 / 14:00 – 16:00 | Kickbike Tour "The Highlights of Antwerp": Are you up for an original way to visit the highlights of Antwerp? Then join this guided tour with a kickbike or a 'trottinette' and discover Antwerp. **(20 places)**

Meeting point: Steenplein 1. Square next to the slope up to the walking bridge.
Bring along: mouth mask, drinks & a snack. Kickbikes will be provided (not electrical!).



ABOUT...

... UNIVERSITY OF ANTWERP

The University of Antwerp, which was founded in 2003, has about 20,800 students and scores extremely well in Young University Rankings. It is ranked 7th in the world in the Times Higher Education Millennials 2019, and 22nd of all universities younger than 50 years old in the Times Higher Education 250 under 50 2019. Up to 20% of our students are international, coming from all corners of the world: from the A of Argentina to the Z of Zambia. The University of Antwerp is characterised by its high standards in education, internationally competitive research and its entrepreneurial approach.

... ANTWERP SUMMER UNIVERSITY

Since 2010 Antwerp Summer University offers intensive, short term courses during the summer months within the areas of excellence of the University of Antwerp and its partners. Next to several interdisciplinary summer schools, summer school topics range from Law over Design Sciences to Health. Target groups are different for each summer school and may consist of students, researchers and/or working professionals.

As you will notice, summer schools consist of intensive full-time programmes in which a wide variety of teaching methods are used. Sessions are taught by international speakers and experts from both within and outside the academic world. An intensive learning experience with maximum impact is guaranteed thanks to the international composition of the classroom, the interactive set-up of the courses and the approachability of the lecturers.

... H2020-MSCA ITN-INSPIRE PROJECT

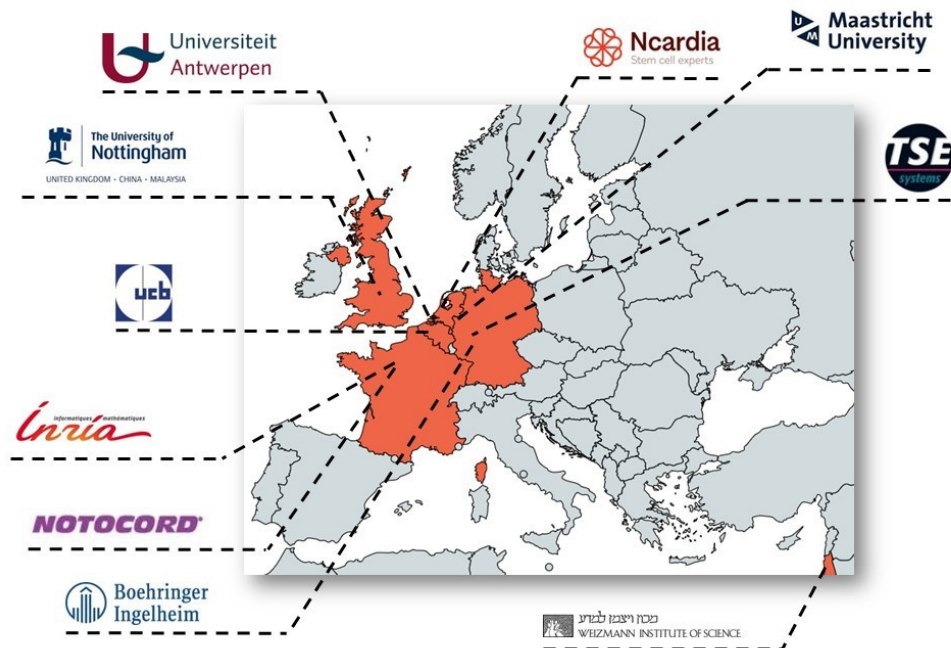
New drug candidates often have off-target effects resulting in adverse events, thus representing a major limitation for drug R&D. Safety Pharmacology (SP) aims to detect, understand and reduce undesirable pharmacodynamic effects early-on. Especially, cardiovascular (CV) toxicity is problematic, as it is the most prevalent reason for failure during preclinical development and remains a key reason for drug attrition during clinical development and beyond. This indicates current SP screens fail to detect a number of (late-onset) functional or structural CV toxicities. Additionally, SP uses a significant number of laboratory animals, thereby creating opportunities for a better implementation of the 3Rs. The vision of INSPIRE is to advance and “inspire” SP by exploring new technological capabilities to addressing emerging CV safety concerns.

Hereto, INSPIRE unites expertise from academic teams, technology-providers, pharmaceutical companies, regulators and hospitals to create a European training platform for 15 Early Stage Researchers (ESRs). This EU-leading Network is composed of 5 academic beneficiaries and 5 industry R&D teams with complementary expertise and skills in the field of safety pharmacology. Additionally, 10 partner organisations complement the training programme.

ABOUT...

... INSPIRE PROJECT

INSPIRE consortium: an international team



Overall, INSPIRE constitutes a multidisciplinary and intersectoral training programme with a balanced combination of hands-on research training, intersectoral secondments, local courses and network-wide events on scientific and transferable skills, enabling future R&I collaborations. Hence, INSPIRE will equip the future generation of SP scientists with a wide range of scientific knowledge and the ability to adapt to a dynamic industry.

More information: www.inspire-safety-pharmacology.eu

Watch our video #INSPIRE explain! (click on the image)



ABOUT...

... ORGANISING COMMITTEE



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Coordinator of the INSPIRE Project

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**WE WISH YOU AN ENRICHING
AND PLEASANT
INSPIRE SUMMER SCHOOL!**