Early Stage Researcher / PhD candidate Position:
Integrating TDM and PK/PD to predict outcomes in sepsis and HAP/VAP (ESR3)

The University of Udine has available an Early Stage Researcher / PhD candidate position on “Integrating TDM and PK/PD to predict outcomes in sepsis and HAP/VAP” as part of the Innovative Training Network (ITN) Training towards Innovative Personalized Antibiotic Therapy (TIPAT).

About TIPAT
The Innovative Training Network (ITN) Training towards Innovative Personalized Antibiotic Therapy (TIPAT) has started March 1, 2020. TIPAT offers a cutting-edge training-by-research program for 15 Early stage researchers (ESRs) / PhD candidates. TIPAT is part of the Marie Skłodowska-Curie International Training Network (ITN) of the European Commission. ESRs in TIPAT will be part of an international network of universities, hospitals and companies. To enable development of innovative personalized antibiotic treatment strategies, quantitative understanding of the interplay between drug, pathogen and host is crucial. The TIPAT network will train inter-disciplinary specialists optimally equipped with a skill set to address this challenge. Central to the TIPAT research and training program of ESRs is the combination of state-of-the art quantitative modelling with approaches in clinical pharmacology, immunology and microbiology, which enables development of innovative methodology to personalized antibiotic therapies.

Project description
Antimicrobial stewardship programs are gaining more and more relevance in optimizing anti-infective treatment and in preventing emergence of antimicrobial resistance. Personalization of antimicrobial treatment based on real-time TDM and dosing adaptation may represent an important tool in antimicrobial stewardship programs. In this ESR/PhD project we aim to characterize the relationship existing between TDM-based datasets across multiple antibiotics, MICs of clinical isolates and biomarkers profiles (i.e. C-RP, procalcitonin and others) in sepsis and pneumonia patients admitted in different hospital wards (i.e. infectious disease, oncohaematological, internal medicine and intensive care unit) with clinical outcomes metrics using pharmacokinetic/pharmacodynamic (PK/PD) modelling. We are interested in comparing classical PK/PD index-based dosing regimens with PK/PD model-based predictions of optimal dose regimens that include MIC and biomarker profiles. The ultimate aim of this project is to identify a model-based characterization of the relation between PK, MIC and biomarkers to predict outcomes and the role of biomarkers to predict individual PK. We expect that the final optimal model-based dosing targets could be implementable in TDM routines, which include PK, MIC and host response profiles.

Selection criteria
- Master degree in the field of Medicine or Pharmacy or Biology (graduation before project start date)
- Experience in clinical pharmacology and skills in pharmacometrics
- Good communication and interpersonal skills to organize research with both academics and professionals;
- Good communication (verbal and writing) skills in English;
- Confirmed capacity to write high-level scientific reports and papers;
- Interested in participating in educational tasks;
- Independent and creative team player;

Planned start of employment: Between 15-10-2020 and 01-11-2020

Duration of position: 36 months

Eligibility
- At the time of commencing their employment, researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of their (recruiting) host organization for more than 12 months in the 3 years prior to their recruitment.
- Applicants must be in the first four years (full-time equivalent research experience) of their research career and have not been awarded a doctoral degree at the first day of their employment contract. This
research experience is measured from the date when they obtain the degree which formally entitles them to embark on a doctorate (either in the country in which the degree was obtained or in the country in which the researcher is recruited), even if a doctorate was never started or envisaged. Research experience is measured to the first day of the employment contract of the researcher.

- Usual MSCA eligibility criteria apply and will be verified during the application process. For more information on MSCA, please see: http://ec.europa.eu/mariecurieactions.

**Benefits**

- The successful candidates will receive a 36-month, full-time employment contract as per Marie Skłodowska-Curie Actions (MSCA) regulations for early stage researchers. The monthly salary will be confirmed upon offer, paid in the currency of the host country, and with a correction factor applied to the host country.
- In addition to their individual scientific projects, TIPAT ESRs will collaborate with world-leading research groups and industries within the consortium through secondments (in Leiden University, Netherlands for 2 months for training in PK/PD modelling under the supervision of Dr. van Hasselt and at InsightRX, USA for 2 weeks for clinical implementation of PK/PD models towards hospitals under the supervision of Dr. R. Keizer). The ESR will be awarded PhD degree at their host institute if completing successfully the training program according to the institutional regulations.
- All ESRs will benefit from further extensive and varied continuing education, completing a series of carefully designed training modules and transferable skills courses; they will participate in symposia, workshops, and international conferences and will have meaningful exposure to the industrial environment through TIPAT industrial partners.

**Application procedure**

Questions about this position can be sent to Prof. Federico Pea (email: federico.pea@uniud.it).
Your application should be send to ricerca.dame@uniud.it and to applications@tipat.eu

When applying, please use the following email subject title: TIPAT ESR3 - Your Name

In your application please include the following files:

- A motivation letter (1 page maximum), please include in your letter alternative ESR TIPAT positions of interest to you if not selected, if any.
- A CV according to the Europass format
- Two reference letters (at least one from your Master thesis supervisor)
- An up-to-date of grades in your bachelor and master programs
- Optional: English proficiency test results (TOEFL, IELTS)

The application deadline is July 31, 2020. We may extend this deadline depending on the developments of the COVID19 pandemic.

The application procedure is as follows:

- A notification for receiving your application is send after the application deadline.
- Applicants are notified if they are invited for video-conferencing interviews by Aug 15
- Interviews are schedule to be completed by Sep 15
- Hiring process is completed by Sep 30

Please note these dates may change if the application deadline is extended.

**Acknowledgement**

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