

DC8: Evolution in heterogeneous populations of compartments

Supervisor: Prof. Dora Tang, dora.tang@uni-saarland.de



UNIVERSITÄT
DES
SAARLANDES

Host institution: University of Saarland, Center of Human and Molecular Biology, Saarbrücken, Germany

The Tang lab is an interdisciplinary lab, focused on unravelling the chemical and physical principles of living systems. They do this using bottom-up synthetic biology and biophysical approaches for the construction and characterization of synthetic cellular systems. The lab applies the system to questions in origin of life and modern biology including “how does compartmentalisation tune biochemistry in time and space?” and “what are the minimal number of components to generate a living system”.

Project description: Establish molecular libraries of prebiotic relevance using bioinformatics. Exploit methods combining single cell sorting of synthetic coacervates with droplet analysis will provide an exciting approach to determining the chemical content from single droplets within a population to characterise the outcome of evolving systems with molecular complexity. Specifically, DC8 will: (1) Use Bioinformatic methods to generate molecular libraries (2) Develop, optimise and use methodologies that enable analysis of single coacervate droplets. (3) Establish analysis pipelines for large data sets.

Secondments: This project is carried out in strong collaboration with the following groups, and visits to their laboratories are expected during the project. A willingness to travel and spend time abroad is therefore essential:

- Host: Ben Gurion University (BGU) | Length: 2 months | Purpose: Exchange technical know-how and explore applications of single droplet analysis.
- Host: Dewpoint Therapeutics (DEW) | Length: 2 months | Purpose: Explore industrial applications of single droplet analysis
- Host: Spectrometry Vision BV (MSV) | Length: 2 months | Purpose: Develop and test sample introduction systems for single droplet analysis by mass spectrometry

Eligibility conditions:

- MSc or equivalent in informatics, physics, computer science or an engineering-related subject.

Required Skills:

- Ability to work with quantitative approaches
- Bioinformatics and programming
- Excellent technical aptitude
- Work independently and communicate effectively within a team
- Excellent conceptual, writing and presentation skills and excellent command of the English language

Monthly allowances:

- Living allowance: €3400*
- Mobility allowance: €600
- Family allowance, if applicable: €660

Estimated gross salary: ~40,000 €/year

* The living allowance is adjusted by a [country correction coefficient](#), depending on the country where the host institution is located. The exact net salary is dependent on local tax and social and health insurance regulations and will be confirmed upon appointment.

Enquiries

For general information about the DarChemDN visit the [project website](#) or send an email to info@darchem-dn.eu.



Funded by
the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency. Neither the European Union nor the granting authority can be held responsible for them. (Grant Agreement No. 101119956)

How to apply

To complete your online application, visit the [DarChemDN recruitment web page](#).

Required documents:

- Cover Letter
- Curriculum Vitae (including contact information of two referees)
- Copy of Transcripts
- Copy of Diplomas (if available at the time of application – otherwise please provide a confirmation with the expected graduation date)

Only shortlisted applicants will be contacted. Interviews are expected to be online in November/December 2023.

Application deadline: Position remains open until filled.



Funded by
the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency. Neither the European Union nor the granting authority can be held responsible for them. (Grant Agreement No. 101119956)