

DC9: Targeting of nucleic acid drugs: a new mitochondrial RNA therapeutic strategy

Host institution: baseclick GmbH, Neuried, Germany.

Supervisor: Dr. Thomas Frischmuth

Co-Supervisors: Dr. Carlo Vascotto, Institute of Hematology and Transfusion Medicine, Department of Experimental Hematology, Warsaw, Poland (Academic); Dr. Hans Spelbrink, Radboud Center of Mitochondrial Medicine, Department of Paediatrics, Nijmegen, The Netherlands.

Project description: Using baseclick's patented click chemistry technology in association with additional conjugation technology, the candidate will explore targeting of RNA/oligonucleotides to the mitochondrial matrix. The candidate will also pursue conjugation of mitochondria-targeting peptide sequences from nuclear genes encoding mitochondrial proteins to deliver oligonucleotides to the mitochondrial matrix. These mitochondria targeting agents will be combined with known cellular targeting agents, such as lipid nanoparticles or receptor-specific ligands, and will be tested in cellular contexts for the ability of targeting oligonucleotides to the mitochondrial matrix. The overarching aim will be mitochondrial delivery of anti-sense oligonucleotides to enable mitochondrial disease therapy.

Host laboratory: [baseclick GmbH](#) is a small company based in Neuried (by Munich), which manufactures, sells and develops reagents and kits for the life sciences based on its patented click chemistry technology. Its subsidiary, [baseclick Vaccines](#), recently developed a strategy for click mediated conjugation of mRNA to chemical moieties that help targeting mRNA to specific cell types/tissues.

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:

- Dr. Carlo Vascotto, Institute of Hematology and Transfusion Medicine, Warsaw, Poland;
- Dr. Hans Spelbrink, Radboud Center of Mitochondrial Medicine, Nijmegen, The Netherlands.

Eligibility conditions

- Master's degree in Biology, Biotechnology, Biochemistry or related field.

Required Skills

- Research experience (e.g. through Master thesis work or research internships) in cellular and molecular biology techniques is required. Experience in mitochondrial biology and/or RNA biology will be a strong advantage.
- Work languages at baseclick are English and German. Proficiency in English will be essential, with good communication skills in spoken and written form. If you are not a



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native-English speaker or have no qualification / degree that has been taught and assessed in a majority native-English speaking country, an English proficiency certificate (e.g., IELTS, TOEFL, Cambridge English) will be an advantage. However, the supervisor may also confirm that a candidate has the required level of English.

Enquiries

For general information about the MITGEST Doctoral Network visit the project website (www.mitgest.eu) or send an email to (info@mitgest.eu).

For additional information on this project please contact Dr. Carlo Vascotto (t.frischmuth@baseclick.eu).

How to apply

To complete your online application, visit the MITGEST recruitment web page (<https://www.mitgest.eu/open-positions/>).

Application deadline

The closing date for applications is **November 15th 2022**.



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