

Absolute LC-MS based quantitation of serum IgG Fc N-glycosylation for patient stratification in chronic inflammatory diseases

PhD position in quantitative glycoproteomics

Network description

GlySign is a **Marie Curie Innovative Training Network** composed of 3 leading European partners in the fields of glycobiology, glyco-immunology and biomarker research. As a European Industrial Doctorate (EID), it exploits the key translational synergies between excellent academic and non-academic partners to the fullest extent. The **main scientific focus** of the network is **glycomic clinical markers** as well as assay development for **Precision Medicine (PM)**. We aim to **bring known glycomics markers to the clinic**.

Project description

Research will be carried out at the Center for Proteomics and Metabolomics (CPM) at the Leiden University Medical Centre (LUMC) in Leiden, the Netherlands. A substantial part of the training will be also carried out at Genos (Croatia), with a possible secondment at Ludger Ltd (UK) and Max Planck Institute (Germany).

The aim of the project is to develop a robust and fast SIL-based workflow for absolute and improved relative quantitation of IgG and its glycoforms. The workflow is then to be developed into a validated IgG glycoproteomic assay for patient stratification in rheumatoid arthritis.

The development of the LC-MS based workflow, including stable isotope labelled (SIL) glycopeptide standards for quantitation of total as well as anti-citrullinated peptide antibody (ACPA) immunoglobulin G Fc N-glycoforms in serum samples, will be performed at the LUMC. Further application of the workflow for the establishment and validation of a mass spectrometric IgG Fc glycan assay, will be performed at Genos. Finally the developed assay will be applied on samples from rheumatoid arthritis patients (Genos).

The candidate will receive **training** in LC-ESI-MS, MALDI-MS, MS/MS for proteomics and glycoproteomics; IgG purification; preparation of SIL-glycopeptides as internal standards; chemo-enzymatic synthesis of the glycan part of the glycopeptides; clinical data management and analysis; statistical data analysis; data analysis automation; strategies for transfer of technology into clinical application; working under GMP; scientific writing as well as non-academic reporting. Teaching and mentoring a Bachelor's/Master's student is also part of the experience the candidate will gain.

This is a multidisciplinary project comprising several European laboratories with different expertise.

The successful candidate will participate in the network's training activities and work placements at the laboratories of the participating academic and industrial teams. Regular meetings and workshops within the EU-funded GlySign will supplement the training and support provided at the LUMC in Leiden, the Netherlands. Marie-Curie projects are embedded in a comprehensive program of courses and exchange visits between the partner institutions.

The candidate, at the end of the project, will be a researcher trained in high-end quantitative glycoproteomics using SIL-glycopeptide standards with additional skills for developing and transferring routine assays for precision medicine in an industrial GMP environment.

Appointment details

Appointment is for the duration of 4 years, of which 36 months will be covered by the H2020-MSCA-ITN grant.

Requirements

The candidate should hold a Master's degree in life sciences (e.g. biochemistry) or analytical chemistry. Experiences in protein chemistry and mass spectrometry are highly desired. A good level of English (spoken and written) is mandatory. The candidate should be a good communicator with the ability to develop work relationships and have strong analytical skills particularly with an attention to detail. They should be an independent thinker with a proven ability to project manage their work and meet deadlines. They should be able to work efficiently as part of a team and to build upon our collaborations.

Eligibility according to EU regulations

Please be aware that candidates should comply with the general mobility criteria for Marie Curie early-stage researchers. In particular, the fellows to be appointed must not have resided or carried out their main activity in the host organization's country for more than 12 months in the 3 years immediately prior to the appointment date. Short stays such as holidays are not taken into account. Early-Stage Researchers (ESRs) shall, at the time of recruitment by the host organisation, be in the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree.

How to apply

Application should include a CV and a cover letter stating motivation and expectations from participation in GlySign, and listing the names of two referees.

Applications sent via email will not be taken into consideration. To apply, click [here](#).

For questions contact

dr. David Falk, Researcher at the CPM (LUMC) in Leiden.

D.Falck@lumc.nl +31 71 5268701