



Call for 10 PhD fellowships

A training network on the design of precision therapeutics that target key glycan motifs implicated in cancer



ANNEX A

GENERAL DESCRIPTION

GlyCanDrug is a European Training Network funded in the framework of HORIZON Marie Skłodowska-Curie Doctoral Networks (DN). It is a glycoscience-oriented DN that aims, for the first time, to take a step ahead in the design of precision therapeutics targeting key glycan motifs implicated in cancer. These glycans are fingerprints of many cancers. Thus, their targeting has the striking potential to overcome cancer heterogeneity that limits the current targeted therapies providing new opportunities for the discovery of precision therapeutics. The credibility and high quality of GlyCanDrug are ensured by top-level glycoscientists from 9 academic institutions (8EU & 1US) and 6 SMEs which encompass complementary and intersectoral expertise, and unique state-of-the-art technological tools to train 10 doctoral candidates (DCs). GlyCanDrug focuses on the precise inhibition of the expression of cancer-associated glycans and the development of cutting-edge tools for their targeting. The unique combination of scientific excellence in interdisciplinary fields and industry know-how will cover the entire process from obtaining fundamental insights to the implementation of innovative solutions. GlyCanDrug aims at creating a critical mass of uniquely skilled graduates in glycan-based therapies. To this aim, we will equip DCs with a thorough multifaceted knowledge of the potential of glycoscience in the discovery of cancer precision therapeutics and the necessary transferable skills. This will put DCs in an advantageous position for job opportunities in both academia and industry. Deciphering the glycome expands the frontiers of knowledge and discovery and enables addressing fundamental challenges in cancer. Therefore, GlyCanDrug DN will strengthen the European innovation capacity by bringing new glycoscience concepts in the development of cancer precision therapeutics to market and policy stakeholders.

CONSORTIUM

Beneficiary partner

- Università Degli Studi Di Firenze (UNIFI) - Italy
- Instituto De Investigação E Inovação Em Saúde Da Universidade Do Porto (i3s) - Portugal
- Universidad De Zaragoza (UNIZAR) - Spain
- Danmarks Tekniske Universitet (DTU) - Denmark
- Univerza V Ljubljani (UL) - Slovenia
- Agencia Estatal Consejo Superior De Investigaciones Cientificas (CSIC) - Spain
- Centre National de la Recherche Scientifique (CNRS) - FRANCE
- Glycodyisplay Aps (GD) - Denmark

Associated partner

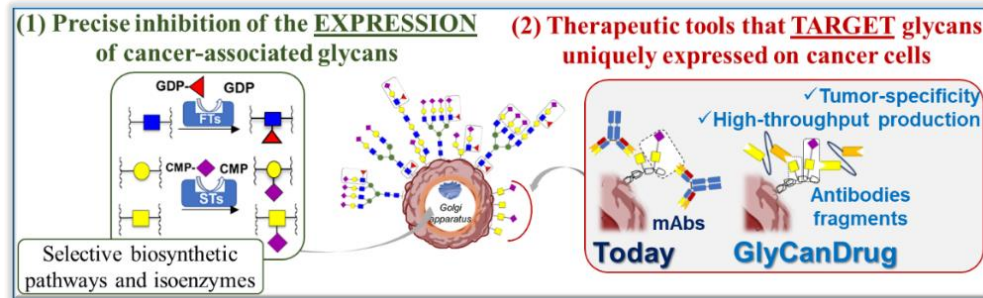
- GlyXera GmbH (GlyX) - Germany
- CiMaas (CiM) - Netherlands
- PAIA Biotech GmbH (PaiB) - Germany
- Carbohyde Zartkoruen Mukodo Reszvenytarsasag (CaH) - Hungary



- Crelux GmbH (CreWu) - Germany
- Florida International University (FIU) - USA
- Kobenhavns Universitet (UCPH) - Denmark
- Tuscan Organization of Universities and Research 4 Europe (TOUR4EU) - Belgium
- Innovation Acta S.R.L. (InnoA) - Italy

RESEARCH PROJECTS

The GlyCanDrug research program **envisions approaching the cancer glycome** with two cohesive and complementary scientific objectives that have a common target: key cancer-associated glycans that tumors exploit to develop enabling cancer features.



These consist of: (1) a precise inhibition of the expression of cancer-associated glycans thus affecting their functional role in cancer progression and (2) the development of cutting-edge tools that target those key cancer-associated glycans that are uniquely expressed on cancer cells.

GlyCanDrug designed the following **10 cutting-edge individual projects**:

- **DC1:** Synthesis of fucose and sialic acid mimetics able to selectively disrupt the function of key glycosyltransferases implicated in cancer. (University of Florence, Florence, ITALY).
- **DC2:** Synthetic approaches for targeting cancer glycosylation. (University of Florence, Florence, ITALY).
- **DC3:** Evaluation of glycosyltransferases inhibitors and targeted approaches in cancer cells and tumour spheroids. (i3S-Instituto De Investigaçã E Inovaçã Em Saúde Da Universidade Do Porto, Porto, PORTUGAL).
- **DC4:** Protein expression and purification of FTs and crystallization of FTs and STs complexed to inhibitors. (Universidad De Zaragoza, Zaragoza, SPAIN)
- **DC5:** Combotope-specific single chain fragments (scFv) antibodies by Phage Display Technologies. (Danmarks Tekniske Universitet, Copenhagen, DENMARK).
- **DC6:** Assay development and activity screening of inhibitors of sialyl and fucosyltransferases. (Danmarks Tekniske Universitet, Copenhagen, DENMARK).
- **DC7:** Screening and hit development towards novel non-carbohydrate inhibitors of glycosyl transferase. (Univerza V Ljubljani, Ljubiana, SLOVENIA).
- **DC8:** Structural and dynamics characterization of the complexes of bioactive molecules with GTs and scFv antibodies by NMR. (Agencia Estatal Consejo Superior De Investigaciones Científicas, Siviglia, SPAIN).
- **DC9:** Expression, purification and characterization of sialyltransferases, and validation of glycosyltransferases inhibitors using microplate assays. (Centre National de la Recherche Scientifique, Lille, FRANCE).
- **DC10:** Testing and validation of inhibitors by engineered cell-based glycan arrays. Glycodisplay Aps, Copenhagen, DENMARK).



Each of the 10 DCs will be enrolled in the PhD programme of the Beneficiary's organization (the beneficiaries which do not award PhD will establish agreements with local and international universities that can provide the degree) and will participate in the network's training activities and work placements at the laboratories of the participating academic and industrial partners. In addition, the training programme of the recruited DCs will be supplemented by regular meetings and workshops within the GlyCanDrug Doctoral Network. GlyCanDrug is to date under the condition that the Grant Agreement is signed, therefore, people interested on some of these DC positions can send a mail to: glycandrug@chim.unifi.it for additional details.

TRAINING PROGRAMME

GlyCanDrug will provide an international, intersectoral and interdisciplinary educational program. According with the EU Principles for Innovative Doctoral Training, it will allow the DCs to obtain skills and knowledge necessary for a career development both in academia and/or private sector.

Training activities are organized in four levels and involve:

- (i) *Skills/knowledges acquired via the Individual Research Project*. DCs will acquire multifaceted practical and technical skills that gravitate around the scientific core programme *i.e* glycoscience (glycochemistry & glycobiology), organic and medicinal chemistry, analytical and computational chemistry, structural and cancer cell biology, biotechnology and nanoscience.
- (ii) *Local PhD schools training activities*. DCs will attend courses at the home institution for both research and soft skills training.
- (iii) *Network-wide training activities*. GlyCanDrug consortium will organize well-structured, interdisciplinary and international training courses with the commitment of prestigious academic European/US organizations and SMEs. These activities will include training (i) by research; (ii) in transferable skills related to research and innovation; (iii) in transferable skills related to management; and (iv) IPR/valorisation and dissemination of science. Round tables are planned, where DCs will have the opportunity to discuss with the industrial partners and one expert on translational science about business, entrepreneurship, start-up, bench-to-bedside translation of scientific results, regulatory & safety issues.
- (iv) *Secondments*. Each DC will have one secondment in a SME (beneficiary or associate partner) to guarantee the industrial relevance of each research project and one secondment in another beneficiary academic partner with interdisciplinary expertise.

ELIGIBILITY RULES

The position is open to candidates (of any nationality) that fulfil the requirements set for the DCs funded by MSCA. Equal opportunities policy without distinction on the grounds of gender, racial or ethnic origin, religion or belief, disability, age or sexual orientation will be applied. Eligibility criteria for MSCA-DN researchers https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-2-msca-actions_horizon-2021-2022_en.pdf pages 80-82/111

At the time of recruitment applicants must fulfil the following rules:

- **Experience:** eligible applicants must not have a PhD yet, whereas they must have a 5-years degree (Master).
- **Mobility:** the DCs must not have resided in the country where the research training activities will take place for more than 12 months in the 3 years prior to the recruitment date (and not have carried out their main activity (work, studies) in that country).



APPLICATION PROCEDURE

Applicants can apply for up to 3 projects within the consortium, indicating the order of preference. All applications will be checked for eligibility. Incomplete applications will be ignored. Applications must be in English. The applicant must send the following documents (IN A ONE SINGLE PDF FILE) to the email specified (e-mail: glycandrug@chim.unifi.it) within **4th February 2024**, clearly indicating in the subject “Application for DCX position”:

- 1) an updated CV (EU pass format: <https://europa.eu/europass/it/create-europass-cv> including the details of education/qualifications, work experience, language skills and other relevant skills);
- 2) a motivation letter (max 1 page);
- 3) full names, affiliation and email addresses of at least 2 potential referees (at least one of them from one former supervisor and/or lecturer);
- 4) the scan of the degree (usually the Master Degree) which would formally entitle him/her to embark on a doctorate, either in the country in which the degree was obtained or in the country in which the researcher will be recruited. In case the degree has not been obtained yet, it is necessary to send an official declaration of the university stating that the degree will be obtained before the expected starting date and the documents reported at point 5);
- 5) a certified document indicating the ranking and marks at the Master Degree as well as the courses/modules they have attended. This document is mandatory for applicants who do not have yet obtained the degree at the time of the application.
- 6) a summary of the Master Degree thesis or a brief description of the past scientific activity.
- 7) format application. Before the signing of the GA, the format application will be sent to people interested upon request on the email: glycandrug@chim.unifi.it
- 8) Copy of a valid ID/Passport.

ASSESSMENT CRITERIA

Supervisors will pre-select candidates for each position, based on the information included in the application procedure that will be evaluated against the following criteria:

- Educational record;
- scientific quality of the applicant’s CV;
- expected individual impact and benefit to the fellow and to the project;
- previous experience in the subject of the GlyCanDrug research programme.

Shortlisted candidates will be invited for interviews with multiple supervisors from the network (online or in-person). Good level of English proficiency (understood, spoken and written) will be considered. Candidates will be notified of the outcome.

STARTING DATE

Start of employment is foreseen between **January-November 2024**. The starting date of each PhD contract shall be set according to local rules of the Beneficiary institution and in agreement with the local supervisor of the selected DC project. However, the PhD contract may not begin before the starting date officially established for the GlyCanDrug project, that is **1st December 2023**.

Information also available at: <https://euraxess.ec.europa.eu/>



APPLICATION FORM

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Name and Surname _____

Born in _____ (_____) on _____

Residence Address _____ Post code _____

Citizenship _____

e-mail address _____ (to be used for all communications regarding the application)

APPLYING FOR

the competition for the awarding of ¹

Order of preference	DC number	Home Institution
First choice		
Second choice		
Third choice		

with reference to the call of **MSCA-DN GlyCanDrug**.

I DECLARE:

(1) to have been awarded **a Master Degree²** in _____ at University of _____ on (date) _____

or

to be at the last year of a Master Degree in _____ at University of _____ and that the title will be awarded by (date) _____

discussing the **thesis**:

under the supervision of Professor _____

(2) not to hold a Doctoral degree.

¹ Fill in order of preference.

² The degree must grant access to doctoral studies in your country.



(3) not have resided and not have carried out my main activity (work, studies, etc.) in the country of the recruiting beneficiary for more than 12 months in the 3 years immediately prior to the starting date of the Doctoral Programme.

Please fill the table below with all information related to your educational/research activity in the last 4 years³ including, if any, period spent in the Country of the recruiting beneficiary for work, study and education.

From	To	City, Country	Activity

	A1	A2	B1	B2	C1	C2
ENGLISH LEVEL						

Please provide the contacts of the two academics/research professionals who wrote the two letters of support for your application.

Name, Surname	Organization	Email	Phone

The candidate acknowledges that the GlyCanDrug consortium accepts the copy the degree certificates for the sole purpose of the evaluation and that the selected candidate may be required to provide the official translation and a legal recognition of their qualification, if required by the national Law of the Host Institution.

³ The candidate shall complete the table indicating, under his/her sole responsibility, the reference dates, the place of activity (City and Country) and activity carried out during the previous 4 years.



ACCORDING TO ANNEX A, I ATTACH TO THIS APPLICATION THE FOLLOWING DOCUMENTS⁴

- Curriculum Vitae (EU pass format: <https://europa.eu/europass/it/create-europass-cv> including the details of education/qualifications, work experience, language skills and other relevant skills).
- Motivation Letter.
- Transcript of record (academic studies) and Master Degree certificate (when available).
- Two letters of support from academics or research professionals.
- A summary of the Master Degree thesis or a brief description of the past scientific activity.
- Copy of the valid ID/Passport.

(Note: IN A ONE SINGLE PDF FILE)

Place and Date

Candidate's Signature

⁴ PLEASE NOTE THAT THIS FORM TOGETHER WITH CURRICULUM VITAE, MOTIVATION LETTER, TWO REFERENCE LETTERS AND DEGREE CERTIFICATE IS MANDATORY FOR APPLICATION ELIGIBILITY (CHECK ANNEX A)

The personal data provided by the candidates in their applications, pursuant to General Data Protection Regulation- Regulation (EU) 2016/679, shall be processed for the purposes of managing the selection procedure and the contract.