Letter of intent

File number 175.2021.043

Grant 2021/2022

Applicant

Title
Collaborative infrastructure for biomolecular biophysics and integrative structural biology

Abstract
The Netherlands Cancer Institute, Utrecht University, Leiden University, and TU Delft would like to announce their intent to submit to the Science (ENW) domain together this application, related to the research fields of Life Sciences (21.30.00 Biochemistry) and Chemistry (13.20.00 Macromolecular Chemistry).

This request will serve two distinct but intertwined objectives that are well-aligned with institutional strategies.

The first objective is to expand the “NKI Protein Facility” with new equipment for the identification and quantification of biomolecular interactions, both in bulk and at the single molecule level. Biophysics support such as offered by the NKI Protein Facility is a crucial asset for modern integrative structural biology studies and drug development campaigns. The NKI Protein Facility provides services at an institutional (NKI and OncoDE) level, nationally (with users from most Dutch universities), and at the European and International level. In addition, over the years the facility has successfully attracted researchers from local smaller and large industries. A much-needed renewal and expansion of the facility, seeded in 2009 by NWO funding (NWO-Groot grant nr. 175.010.2007.012), is key to consolidate our strong national and international position in macromolecular biophysics and structural biology, that is evidenced by being an Access Centre of the ESFRI Landmark project Instruct-ERIC, and by coordinating INEXT-Discovery, the Horizon2020 European infrastructure project for structural biology. The request crucially includes an advanced surface plasmon resonance instrument allowing to monitor complex binding kinetics, a single molecule scattering device for sizing macromolecular complexes, and a single-molecule microscope from LUMICKS, a Dutch company leading the international field for dynamic single molecule and cell avidity analysis instruments.

The second objective of the application is to fund membership for the Netherlands to Instruct-ERIC, which is essential for the applicants for several reasons. First, continued membership is crucial for the development of the requested biophysics facility at the NKI. Instruct-ERIC is key to consolidate scientific expertise important for key services, and to provide European embedding, networking and outreach. Second, continued participation to Instruct-ERIC will allow all applying partners to solidify their strong and necessary networking activities that place their organizations and the Netherlands at the forefront of European structural biology, also catalyzing and consolidating the integration of TU Delft and the NKI Protein Facility offer on single molecule technologies. Third, participation to Instruct-ERIC will sustain the cost-reduced (typically free) access to both the national Instruct-NL center (the renewed NKI facility, the NMR and MS facilities at the Bijvoet center, the cryo-EM facility at NeCEN, and new services on the single molecule biophysics area at TU Delft) and to all eight European Instruct-ERIC centers, including e.g., the newly established EMBL Imaging Centre.

This application is aligned with the Life Science Research Infrastructure Roadmaps NEMI, uNMR-NL, NL-OPENSSCREEN and NL-Bioimaging AM.

Organisation responsible for the application

Confirm letter of intent
With submitting this form via ISAAC I declare to have filled in this form completely and truthfully.