

Irfan Prabudiansyah, PhD

SUMMARY

- Biochemist and structural biologist with 10+ years of experience in international team collaborations.
- Proficient in project design and execution, specialized in membrane proteins and enzymes.
- Strong leadership and management skills leading to successful project outcomes.
- Author of 6 peer-reviewed journal publications and demonstrated strong skills in written and oral scientific communication.

EDUCATION

PhD in Biochemistry, University of Groningen, the Netherlands 2017

Topic : Functional studies of protein translocation in vitro and in vivo

Advisor : Prof. Arnold Driessen

MSc. in Biochemistry, Institut Teknologi Bandung (ITB), Indonesia 2010

Topic : Structural dynamics of the protein translocation complex

Advisors : Prof. Dessy Natalia and Prof. Arnold Driessen

BSc. in Chemistry, Institut Teknologi Bandung (ITB), Indonesia 2009

Topic : Biochemical characterization of Protein Disulfide Isomerase

Advisor : Prof. Dessy Natalia

RESEARCH EXPERIENCE

Umeå University, Postdoctoral Scientist 2021 – Present

Department of Chemistry, Group of Dr. Magnus Andersson

- Developed protocols for membrane protein expression, purification, and reconstitution.
- Determined high-resolution structures of membrane proteins using single-particle Cryo-EM.
- Utilized time-resolved X-ray solution scattering to study protein structural dynamics.
- Lead a research project on time-resolved Cryo-EM studies of membrane proteins, collaborating with scientists from the University of Leeds, UK.

Delft University of Technology, Postdoctoral Scientist 2017 – 2020

Department of Bionanoscience, Group of Dr. Marie-Eve Aubin-Tam

- Optimized expression and purification protocols for recombinant soluble and membrane proteins.
- Characterized membrane transport proteins using biochemical and structural biology techniques.
- Led a research project on Cryo-EM studies of membrane proteins in collaboration with the University of Basel, Switzerland.
- Published 2 scientific articles in peer-reviewed journals.

University of Groningen, PhD Researcher 2011 – 2017

Department of Molecular Microbiology, Group of Prof. Arnold Driessen

- Produced and purified membrane proteins in detergent, nanodiscs, and liposomes.
- Elucidated protein translocation mechanisms using biochemical and biophysical techniques.
- Supervised and trained master and bachelor students.
- Published 4 scientific articles in peer-reviewed journals.

PUBLICATION

- **Irfan Prabudiansyah**, Ramon van der Valk, and Marie-Eve Aubin-Tam, Reconstitution and functional characterization of the FtsH protease in lipid nanodiscs. *Biochimica et Biophysica Acta*, 1863, 2, 183526, (2021).
- Vanessa Carvalho, **Irfan Prabudiansyah**, Lubomir Kovacik, Mohamed Chami, Roland Kieffer, Ramon van der Valk, Nick de Lange, Andreas Engel, and Marie-Eve Aubin-Tam, The cytoplasmic domain of the AAA+ protease FtsH is tilted with respect to the membrane to facilitate substrate entry. *Journal of Biological Chemistry*, 296, 100029, (2021).
- **Irfan Prabudiansyah** and Arnold J.M. Driessen, The canonical and accessory Sec system of Gram-positive bacteria, *Current Topic in Microbiology and Immunology*, 404, 45-67, (2017).
- **Irfan Prabudiansyah**, Ilja Kusters, Antonella Caforio, and Arnold J.M. Driessen, Characterization of the annular lipid shell of the Sec translocon, *Biochimica et Biophysica Acta*, 1848, 10 Pt A, 2050-2056, (2015).
- **Irfan Prabudiansyah**, Ilja Kusters, and Arnold J.M. Driessen, *In vitro* interaction of the housekeeping SecA1 with the accessory SecA2 protein of *Mycobacterium tuberculosis*, *PLoS One*, 10, 6, e012878, (2015).
- Jelger A. Lycklama a Nijeholt, Jeanine de Keyzer, **Irfan Prabudiansyah**, and Arnold J.M. Driessen, Characterization of the supporting role of SecE in protein translocation, *FEBS Letter*, 587, 18, 3083-3088, (2013).

POSTER AND PRESENTATION

- Swedish Conference on Macromolecular Structure & Function (2023). Cryo-EM structure determination of P-type ATPases in lipid nanodiscs.
- Dutch Biophysics Conference, Veldhoven, the Netherlands (2019). The cytoplasmic domain of FtsH is tilted with respect to the membrane to facilitate substrate entry.
- Dutch Biophysics Conference, Veldhoven, the Netherlands (2018). Structural and functional studies of the FtsH protease.
- Chemistry as Innovating Science (CHAINS), Veldhoven, the Netherlands (2016). Dynamics of the Sec translocon in the cell membrane.
- Chemistry as Innovating Science (CHAINS), Veldhoven, the Netherlands (2015). Characterization of the annular lipid shell of the Sec translocon.
- GBB Symposium, Groningen, the Netherlands (2014). Characterization of the annular lipid shell of the Sec translocon.
- EMBO Conference: From structure to function of translocation machines, Dubrovnik, Croatia (2013). Interaction of the housekeeping SecA1 with the accessory SecA2 protein.
- Dutch Biophysics Conference, Veldhoven, the Netherlands (2012). Characterization of the supporting role of SecE in protein translocation.

GRANTS AND AWARDS

- FOM Grant, University of Groningen, the Netherlands (2015).
- Bernoulli Grant, University of Groningen, the Netherlands (2011).
- Master Sandwich Scholarship, University of Groningen, the Netherlands (2010).
- Excellent Scholarship, Ministry of National Education of Indonesia (2007-2009).

TEACHING AND MENTORING

- Supervision of the practical course: “Negative Staining Electron Microscopy” for Bachelor students of Nanobiology (2020).
- Supervision of the Bachelor Thesis in Nanobiology of Hein Zijlstra (2019).
- Supervision of the Master Thesis in Molecular Biology of Max den Uijl (2017).
- Supervision of the Bachelor Thesis in Molecular Biology of Anke Haaksma (2016).

RESEARCH SKILLS

- **Protein production and characterization**
 - Expression of recombinant proteins in bacteria and yeast
 - Purification of recombinant soluble and membrane proteins
 - Affinity chromatography (IMAC), ion exchange (IEX), and SEC by AKTA/HPLC system
 - Protein characterization: SDS-PAGE, BN-PAGE, Western blot, UV-Vis spectroscopy
 - Production of membrane proteins in detergent, nanodiscs, liposomes, and SMALPs
- **Biochemistry and molecular biology techniques**
 - Molecular Cloning and DNA manipulation, PCR, Site-directed mutagenesis
 - Protein labeling, functional assays, and enzyme kinetic assays
 - Biochemical/Biophysical characterization: Dynamic light scattering (DLS), Multi-angle light scattering (SEC-MALS), Microscale Thermophoresis (MST), and Fluorescence spectroscopy
- **Structural biology techniques**
 - Negative staining electron microscopy (NSEM)
 - Cryo-electron microscopy (Cryo-EM)
 - X-ray solution scattering (XSS)

REFEREES

1. Dr. Magnus Andersson
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2. Dr. Marie-Eve Aubin-Tam
Associate Professor, Department of Bionanoscience
Delft University of Technology
E-mail: M.E.Aubin-Tam@tudelft.nl
3. Prof. Dr. Arnold Driessen
Professor, Department of Molecular Microbiology
University of Groningen
E-mail: a.j.m.driessen@rug.nl