

# User Profile

## Ewa Folta-Stogniew Yale University

Dr. Ewa Folta-Stogniew is one of the more prolific proponents of light scattering for the characterization of biological macromolecules in solution. Her many contributions, the most recent of which appeared in *Science Signaling*, *Molecular Cell* or *Nature Communications*, have covered the determination by SEC-MALS and FFF-MALS of the molar mass, size and association state of native and modified proteins, nucleic acids, membrane proteins solubilized by detergents, and the complexes that these form. The majority of her light scattering work has been carried out under the auspices of the Biophysics Resource of Keck Laboratory, which she established at Yale University's School of Medicine in 1998. Since then the Keck Biophysics Resource has become the go-to center for biophysical characterization services, not just of New England but for the US and globally.

Dr. Folta-Stogniew received her Ph. D. in Molecular Biophysics from Wesleyan University in Middletown, CT and M.Sc. in Chemistry from Technical University of Wroclaw (Poland). In 1993 she was awarded the Petersson Fellowship Award from Wesleyan University, and in 1996 the Brown-Coxe Fellowship Award from Yale University. Her first independent research project involved the synthesis of a fluorescent analog of ATP that was used to covalently label and map a protein's nucleotide binding site. This work so fascinated her that it led her to pursue a career in research, dramati-

cally switching her field of study to NMR and the dynamics of individual base pairs in nucleic acids.

The most exciting benefit of SEC-MALS, in her experience, is the ability to determine the native solution molecular weights of proteins, protein-protein complexes and other macromolecular constructs, completely independently of SEC elution position and thus free of the impact of non-globular conformations or interactions with the SEC packing. Among other channels, she has introduced the life science community to these advantages via a 2009 publication in the *Encyclopedia of Life Sciences*.<sup>ii</sup>



Prior to the year 2000, SEC-MALS was not widely used in biological sciences. With NIH funding, the Biophysics Resource acquired Wyatt DAWN and Optilab instruments for a standard SEC-MALS setup, a DynaPro dynamic light scattering (DLS) detector for cuvette-based size measurements (which are often used to assess protein solution quality as well as hydrodynamic radius), and more recently a complete SEC-FFF-MALS system including an Eclipse. Academic and industrial users from the US and abroad enjoy the benefits of reliable and professional sample analyses at the Resource, where Ewa serves as Director and is solely re-

sponsible for the implementation and support of nine different state-of-the-art characterization technologies. Data collected and expertly interpreted at the resource have contributed to over 80 publications, majority of which include MALS results.

In her spare time, Ewa enjoys cooking and traveling with her husband and two children. An avid skier, she's traveled throughout Europe and North America, skiing in 7 states and 4 European countries, with Utah

being her favorite destination. She has presented case studies at Wyatt Technology's International Light Scattering Colloquium events in 2002 and 2011, and will be presenting a webinar on this topic next month – click here for details. Wyatt has been pleased to support Dr. Folta-Stogniew's research with cutting-edge instrumentation, and we look forward to future collaborations as well!

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P.B. Murray et al "Heparin is an activating ligand of the orphan receptor tyrosine kinase ALK", *Sci Signal*. 2015 Jan 20;8(360):ra6. doi: 10.1126/scisignal.2005916

A.V. Reshetnyak et al. "The strength and cooperativity of KIT ectodomain contacts determine normal ligand-dependent stimulation or oncogenic activation in cancer", *Mol Cell*. 2015 Jan 8;57(1):191-201. doi: 10.1016/j.molcel.2014.11.021

<sup>i</sup>R.A. Albright *et al.* "ENPP1-Fc prevents mortality and vascular calcifications in rodent model of generalized arterial calcification of infancy", *Nature Comm.* **6**, 10006. DOI: 10.1038/ncomms10006.

<sup>ii</sup> E. J. Folta-Stogniew. "Macromolecular Interactions: Light Scattering", *Encyclopedia of Life Sciences* 2009 , 1-9. DOI: 10.1002/9780470015902.a0003143

