

IN MEMORIAM

A tribute to Anna Tramontano (1957–2017)

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Original publication:

Moulton, J, Fidelis, K, Kryshchak, A, Schwede, T. A tribute to Anna Tramontano (1957–2017). *Proteins: Structure, Function, and Bioinformatics*. 2018; 86: 5–6.

<https://doi.org/10.1002/prot.25406>

This CASP12 special issue of *Proteins* is dedicated to the memory of Anna Tramontano. Anna was engaged in CASP from near its beginning, as an assessor of the results in the template-based modeling category in CASPs 4 and 5 (2000 and 2002).^{1,2} From CASP6 (2004) through the most recent experiment, CASP12, she was a member of the organizing committee.

Anna's contributions to CASP have been immense, starting with her work as an assessor. She introduced robust statistical measures for determining the significance of score differences between individual groups.² This innovation was important in clarifying what methods really were performing better than others and in reducing controversy,^{3,4} so allowing greater focus on the scientific significance of the results. She also promoted and assessed a new CASP category — that of determining the community's ability to estimate the accuracy of models both globally and at the residue level.⁵ Subsequent advances in this category have resulted in methods that now provide realistic estimates of model accuracy.⁶ She also pioneered assessment of the ability of structure models to provide functional insight,⁷ an area of increasing focus in recent CASPs.⁸

As a CASP organizer, Anna led a series of CASP conferences in Europe (three in Gaeta, Italy in 2004, 2012, and 2016, and one in Sardinia in 2008). Anna's superb organizing ability and scientific judgment made these outstandingly successful events. She also organized and hosted many planning meetings for assessors and organizers at “La Sapienza” University in Rome. Again, her organizational prowess made these extraordinarily stimulating and productive events. Her passion for mentoring and advancing the careers of junior scientists resulted in a number of CASP innovations. She was instrumental in encouraging junior scientists to run their own event in conjunction with the main CASP meetings. She insisted that we maximize support for junior participants and women and she ran a job fair in each CASP to help match applicants to opportunities.

Anna was the editor for many of the CASP *Proteins* special issues. She did a magnificent job of ensuring that papers were of the highest standard. More generally, Anna was a major force in setting the direction of CASP, always pushing for rigorous, exceptional science. Her contributions to CASP were creative in both big and small ways: She designed the widely recognized CASP logo, featuring the mythical Mouth of Truth (Bocca della Verità), a symbol of trustworthiness, capturing the CASP theme.

Anna was also very active in other initiatives in the protein structure modeling community. Together with Tim Hubbard, she ran two ten-day EMBO workshops on “Frontiers of protein structure prediction” in 1995 and 1997. In these events, about 20 junior people worked with leaders in the field to build the best possible structure models of proteins that had been nominated by biologists. The outcome helped establish modeling as a realistic tool for obtaining biologically relevant structural information.⁹ The events were also influential on the careers of a number of the participants.

In 2006, Anna published a book on protein structure modeling,¹⁰ providing a central resource for the broader community.

Anna's work in CASP was only one of her many contributions to science, summarized in another tribute.¹¹ Of particular note is her extensive role in developing European bioinformatics and her work with students in Africa. She made many major contributions to computational biology, especially in the area of antibody structure and function, in all publishing >200 papers.

Whilst Anna's accomplishments were indeed major, the dry factual account above does not capture the essence of her work and life. She really was the most extraordinary person. She was quintessentially Italian, and yet was also a European and a citizen of the world, having lived and worked in California and Germany. She taught courses in a wide range of countries including in Africa, Cuba, Saudi Arabia, and Iran. She was successful both in industry and in academia. She lived in Italy at a time when advancing as a woman was not easy: David Jones (UC London) recounts being stopped by the Carabinieri when Anna was driving a large company Mercedes, apparently for no other reason than that it was suspicious to see a woman in that role. As must be clear from the above, she was an exceptionally effective and efficient organizer. As a participant at a recent Rome symposium in her honor, Arthur Lesk, put it — “We all say someone should do something about something or other, but Anna actually went out and did it.” As another participant, Manuela Helmer Citterich (University of Rome Tor Vergata) said, “she was very fast and had lots of answers.” She radiated a generosity of spirit and a willingness to help others that was quite exceptional. She was frequently, forthrightly, and pithily critical of the things that are wrong with the world in general and the conduct of science in particular. In others this could have had a dampening effect, but the combination with her openheartedness made these remarks valuable and influenced events for the better. She was a very busy person, and yet was always willing to quietly listen to the troubles and concerns of others and provide supportive and helpful feedback. She was passionately committed to the advancement of less privileged scientists including the young, women, and those from developing countries. She viewed the world with an irony and deep sense of humor that made its imperfections more bearable to herself and to others. The world is a dimmer, less vibrant, and less well-run place without her.

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