TOWARDS A CURE FOR AMYLOID DISEASES: A SUCCESSFUL EXAMPLE OF PRECISION AND TRANSLATIONAL MEDICINE

(*PAVIA ITALY 16-19 DECEMBER 2019*)

"What I cannot create I do not understand" is the celebrated sentence by Richard Feynman. Discovery of the chemical composition of pathological amyloid deposits almost 60 years ago has potently driven the objective of reproducing the transition of proteins into amyloid fibrils in the test tube and animal models. We have now the ability to shift the secondary and tertiary structure of soluble proteins into the unique structure of amyloid fibrils thus breaking the paradigm of the strict correspondence between a specific amino acid sequence to only a unique 3D structure. Amyloid can be formed in transgenic animal models designed on the basis of the in vitro evidence. At the same time, our capacity to scrutinize the disease in patients has greatly improved through extensive genetic and proteomic analysis as well as in vivo imaging of amyloid-affected organs. In this area of research, every scientific component has advanced significantly, but the gap between the theory derived from experimental models and the reality emerging from the clinical evidence still exists or even becomes wider. The meeting will gather basic and clinical scientists to present their own achievements and discuss the related impact in filling the gap between pathogenic theory and medical evidence.

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Topics:

Protein misfolding in compatible environment- Mechanism of formation of amyloid nuclei

Role of amyloid seed in disease acceleration-mechanisms of natural protection against amyloid

Tissue damage by amyloid – New challenging questions raised by the response to innovative therapies.

An initiative of

European amyloid network EURAMY

Core-to-Core Program

2017-2022 JSPS Innovative Research Area
Chemistry for Multimolecular Crowding Biosystems