Cryo-EM structures of fibrils from systemic amyloidosis

Systemic amyloidosis is a group of protein misfolding disease in which the production site of the fibril precursor protein does not necessarily correspond to the deposition site in the body. In systemic AA amyloidosis, the fibril precursor serum amyloid A protein is produced mainly in liver but deposits in spleen, kidney and other organs. In systemic AL amyloidosis, the fibril precursor is an immunoglobulin light chain. Systemic AA amyloidosis, which affects humans and many animal species, is one of the best cases of a prion-like disorder in mammals. We have used cryo electron microscopy to determine the molecular structures of AL and AA amyloid fibrils purified from human patient tissue as well as from AA amyloidotic mice. Our research provides insights into the mechanisms of protein misfolding in vivo and species barrier during prion-like cross-seeding.

References
Cryo-EM structure of a light chain-derived amyloid fibril from a patient with systemic AL amyloidosis.
Nature Comm. 10, 1103 (2019)
Cryo-EM fibril structures from systemic AA amyloidosis reveal the species complementarity of pathological amyloids.
Nature Comm. 10, 1104 (2019)