

# Structural characterization of microcin E492 amyloid formation: Identification of the precursors

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Microcin E492 is a low-molecular weight, channel-forming bacteriotoxin that generates amyloid structures. Using electron microscopy and image processing techniques several structural conformations can be observed. Prior to the conditions that induce amyloid formation and at its initial stage, microcin E492 molecules can be found in two main types of oligomers: a pentameric, pore-like structure consisting of globular monomers of  $\sim 25$  Å diameter, and long filaments made up of stacked pentamers. The equilibrium between these structures depends on the properties of the solvent, because samples kept in methanol mainly show the pentameric structure. Amyloid induction in aqueous solvent reveals the presence, together with the above mentioned structures, of several amyloid structures such as flat and helical filaments. In addition, X-ray diffraction analysis demonstrated that the fibrils formed by microcin E492 presented cross- $\beta$  structure, a distinctive property of amyloid fibrils. Based on th