先端融合科学セミナー開催のご案内

Model polyQ proteins based on the B-lactamase BlaP : How non-polyQ regions influence the polyQ length-dependent aggregation process

日時：平成 27 年 7 月 29 日（水）14:30-15:30
場所：Z302

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The abnormal expansion of polyglutamine (polyQ) tracts above a threshold length within proteins is associated with an increased propensity of the protein to aggregate into amyloid fibrils. Such expansions in nine human proteins lead to nine distinct neurodegenerative amyloidoses. While repeat length and aggregation are well correlated, recent studies suggest that the non-polyQ regions of these proteins can also play a significant role, both preventative and facilitative, in the aggregation process. With the aim of exploring which properties of the host protein (e.g. sequence, structure, stability, dynamics…) influence the ability of polyQ tract to mediate aggregation, we engineered chimeric proteins via the insertion of polyQ repeats into the BlaP β-lactamase. We investigated the impact of polyQ lenght and position and of the polyQ flanking sequence on the structure, stability, and aggregation propensity of BlaP. All together our results indicate that the propensity of polyQ repeats to induce aggregation is extremely sensitive to its environment, in particular to the stability of the host protein and to the sequence flanking the polyQ tract. This work should contribute to a better understanding of how the overall protein context influences the amyloid fibril-forming propensity of polyQ-containing proteins.

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