

## Intermediate oligomeric states of ferritin

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Ferritin is a typical protein cage structure which is formed from 24 polypeptide subunits by the process named self-assembly. An assembled globule of ferritin is shaped into a hollow sphere with the key function of iron storage [1]. Thus, ferritin is able to store up to 4500 iron atoms within its shell [2] in the form structurally similar to ferrihydrite ( $5\text{Fe}_2\text{O}_3 \cdot 9\text{H}_2\text{O}$ ) [3]. Ferritin is commonly used in structural biology due to its stability in a wide range of conditions (in particular, thermal and different pH). This globular protein also has a plea of biophysical and biomedical applications, especially in drug design [4]. It is crucial to understand the process of self-assembly for the purposes of drug development, for example, recombinant ferritin-based vaccines.

In this work we investigated different oligomeric states of ferritin by small angle scattering (SAS) using recombinant protein complexes based on ferritin from *H. pylori*. We defined macro parameters such as  $R_g$ ,  $D_{max}$  and  $V_p$  for different fractions obtained by size-exclusion chromatography (SEC) the samples of ferritin exposed to highly basic pH.

We supposed that these macro parameters correspond to monomeric, dimeric and 24-meric states. In addition, there are evidences of an octomeric state of ferritin, but that part is underdiscussed in this report and requires some further investigation.

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### Literature list

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