Solution practice: the part A

Please see next page for structure of Aggregan (work of Lin Han and Prof. Orhij, MIT)

1. $\text{Aggregan} \xrightarrow{\text{NH}_2 + \text{Na}_2\text{S}} \text{H}_2\text{O}^+ \text{C}\text{N}\text{O}\text{C}\text{C}\text{C}_2\text{H}_2\text{C}_2\text{SSSS}[\text{N}]\xrightarrow{\text{water soluble} \rightarrow \text{see handout}}$

2. DTT (dithiothreitol) (as -SH exchange -SH)

3. Immerse gold coated substrate into solution A
(a) Proteoglycan aggregate

(b) Aggrecan

(c) Chondroitin-4-sulfate

Figure 1. Structural hierarchy of aggrecan in cartilage: (a) electron microscopy of aggrecan and the aggregates it forms with hyaluronan and link protein[Rosenberg, 1982 #627]; (b) aggrecan core protein contains 3 globular domains (G1, G2, G3); the CS-GAG attachment region is composed of a variable keratan sulfate region and 2 chondroitin sulfate regions (CS-1 and CS-2) distinguished by their sequence patterns[Hardingham, 1992 #51].