



UPPSALA
UNIVERSITET

Molecular Biotechnology Programme

Uppsala University School of Engineering

| | |
|---|--|
| UPTEC X 08 040 | Date of issue 2008-10 |
| Author | Helena Nilsson |
| Title (English) | Hydrophobic interaction chromatography for removal of antibody aggregates |
| Title (Swedish) | |
| Abstract | <p>The purpose of this master's thesis was to screen a number of different HIC media including existing products, products from a competing company and new prototypes in order to find the most suitable media and parameters for aggregate removal in purification of a MAb. Samples with high aggregate content, approximately 15% and 93% were used. Screening in the 96 well filter plate format was performed followed by aggregate analysis and verification in the column format. Different salts, efficiency and the antibody binding capacity were investigated for one prototype media, B1 – Phenyl (20µmol/ml). The effects of salt content, pH, incubation time and sample dilution on antibody binding capacity were also tested for the prototype medium as well as a competitor medium. The results showed that 96 well filter plate screening can give a lot of information about the nature of HIC media. There was an observed correlation between the plate format and the column format regarding the salt concentration at which the sample eluted and a poorer correlation of the aggregate content between the two formats. B1 – Phenyl (20µmol/ml) is a promising prototype which reduces aggregate levels at low salt concentrations. The approximate maximum antibody binding capacity for B1 – Phenyl (20µmol/ml) in the 96 well filter plate format was 12 mg/ml_{resin} and it suggestively has highest antibody binding capacities at high sodium sulphate concentrations and at low pH values.</p> |
| Keywords | HIC, MAb, aggregate, ligand, 96 well filter plate format, ammonium sulphate |
| Supervisors | Kjell Eriksson GE Healthcare |
| Scientific reviewer | Karin Caldwell Institutionen för fysikalisk och analytisk kemi, Ytbioteknik Uppsala Universitet |
| Project name | Sponsors |
| Language | Security |
| English | |
| ISSN 1401-2138 | Classification |
| Supplementary bibliographical information | Pages 52 |
| Biology Education Centre | Biomedical Center |
| Box 592 S-75124 Uppsala | Husargatan 3 Uppsala |
| Tel +46 (0)18 4710000 | Fax +46 (0)18 555217 |