



Dear BPI-West 2018 Attendees,

JNC America Inc, a manufacturer and global supplier of Cellufine chromatography media, is excited for this year's symposium with a great scientific program.

We would like to cordially invite you to the following events we will be hosting throughout the symposium at our Booth # 610:

Cellufine Chromatography Media Abstract: BPI-West 2018 Conference.

The Cellufine™ product line offers a broad range of chromatography resins for the purification of proteins, enzymes, and biomolecules. The media based on spherical cross-linked cellulose beads, which exhibit high chemical stability / mechanical strength, higher flux and inherently bio-compatible. Applications include mAb /protein / polysaccharide purification, endotoxin removal, and used worldwide purifying vaccines, therapeutic enzymes, and virus concentration / purification. Cellulose media have significantly lower Leachables than comparable polymeric beads.

Workflow platforms include; Gel filtration, IEX, Affinity, Mixed Mode and HIC. These media resins are available for broad range of biomolecules and applications. Customized Cellufine media / ligands, and bead sizes available for challenging purification process.

When Purity is Paramount - Cellufine™ Media Delivers.

Poster Presentation #1

Title: Development of novel cellulose based rProtein A capture resins for improved workflow effective Mab purification.

By: Natsuki Okaniwa¹, Eri Narita¹, Naoki Yamanaka¹, Masami Shiina², Yoshihiro Matsumoto¹, Malcolm G. Pluskal³ and Shigeyuki Aoyama¹

From: ¹JNC Corporation, R&D, Yokohama, ²Manufacturing Research, Minamata, Japan and ³JNC America, Cellufine Application Lab, Littleton, MA

Abstract: A new product development approach will be described for the affinity capture of Mab's from cell culture materials employing a novel base stable rProtein A ligand with up to six available Fc binding sites. The resin is based on a stable cellulose bead structure with excellent flow properties combined with the affinity ligand immobilized at multiple sites to yield a robust next generation Mab capture resin with a high level of binding capacity. The new Cellufine™ SPA rProtein A resin platform is being developed in two platforms; a) a format offering 10% DBC capacities > 55mg/mL at 6 min residence time based on a 90 µm diameter bead size and b) a new Cellufine bead architecture offering higher binding capacity > 65 mg/mL at 4 min residence time to increase throughput in the new continuous chromatography workflow format. These resins have been developed to retain > 95% of their original binding capacity after >100 cycles of re-use under 0.1M NaOH CIP conditions. Polyclonal and monoclonal antibodies show efficient elution at pH 3.5 with a 0.1M Glycine HCL or 60 mM Acetic acid buffers. This new Cellufine Protein A suite of resins developed by JNC, will offer flexibility for future continuous workflow formats as well as being compatible with existing chromatography systems.

Poster Presentation #2

Title: Evaluation of Dextran Sulfate as a Chromatography Ligand on the surface of Cellufine™ cellulose beads

By: Kohji Nobuta¹, Jyunya Toba¹, Akihiro Uchida¹, Malcolm G. Pluskal² and Shigeyuki Aoyama¹

From: ¹JNC Corporation, R&D, Yokohama, Japan and ²JNC America, Cellufine Application Lab, Littleton, MA

Abstract: Dextran sulfate is a synthetic derivative of the natural polysaccharide dextran and is reported to have similar bioactivity as heparin. This molecule is also well known to show unique chromatographic properties such as; a) heparin like pseudo affinity as well as b) cation exchange interactions. JNC has developed new chromatography resins, Cellufine MAX DexS-L and MAX DexS-H incorporating two different molecular weight (MWt.) dextran sulfate polymers. These new resins are built on a crystalline highly cross-

linked stable cellulose base bead ideally suited for large scale bio-pharma manufacturing processes. Flow packed columns can be operated under high flow modes at up to 1200 cm/h with $< 0.3\text{MPa}$ back pressure. Data will be presented characterizing the binding properties of model proteins, such as Lactoferrin and polyclonal IgG to these new chromatography resins. In addition, a comparison to similar resins with a heparin ligand, cellulose sulfate and an agarose-based dextran sulfate resin will be also included in this poster. Contour plot analysis of model protein adsorption will be presented to explain the differences found with these new resins. Application data on the purification of Antithrombin III protein and egg-derived influenza virus particles will be described in this presentation. These cellulose-based resins, surface modified with different MWt. Dextran sulfate polymers showed different model protein binding properties. This new family of Cellufine resins offers a wider choice of chromatographic modes and are ideally suited for a range of purification applications.

Booth Exhibition #610

Date: March 20-22, 2018

Location: Hilton San Francisco
Union Square,
San Francisco, CA