INFLUENZA VIRUS CAPTURE USING MEMBRANE CHROMATOGRAPHY: IMPROVING SELECTIVITY BY MATRIX DESIGN AND PSEUDO-AFFINITY LIGAND INTERACTIONS

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Because next generation cell-based influenza vaccines have to be produced faster and in greater quantities than traditional vaccines, future purification processes will require more efficient unit operations for their isolation and purification. Membrane chromatography has already demonstrated a number of positive characteristics for the bind&elute purification of viral particles like e.g. adenoviruses or influenza viruses. The technology not only addresses the diffusion limitations of porous particle media but also offers dramatic advantages in binding capacity in a disposable format. Therefore, the last remaining challenge for the easy adoption of this technology in the vaccine industry represents selectivity and recovery. We present here a novel cellulose based stationary phase whose active specific surface area is designed for maximum virus accessibility. The resulting gain in selectivity and recovery but also in binding capacity is further maximized by using highly selective pseudo affinity ligands for influenza viruses.