

## Purification of Viruses and Viral-like-particles

BioToolomics has developed special chromatography media tailored for the purification of vaccines, viruses or VLPs. All type of resins can be supplied in pre-packed disposable columns for R&D or GMP use (with regulatory support files).

**Shelled Mixed-Mode Resins:** Purifying viral materials in flow-through mode, i.e. impurities smaller than a virus is adsorbed to the mixed-mode ligand inside the bead, meanwhile intact virus passes through the column. It is a very gentle method with little loss of product.

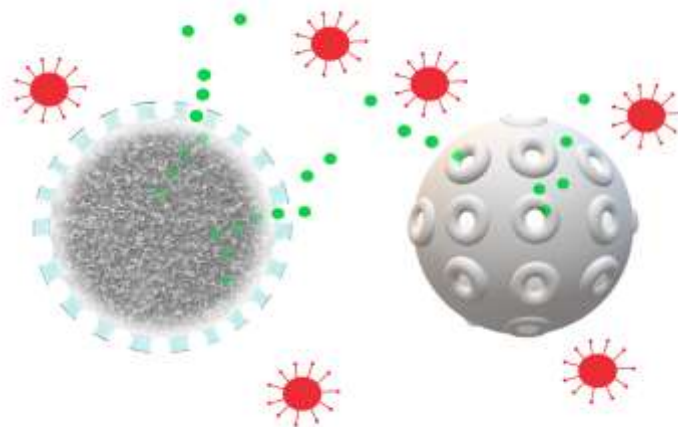
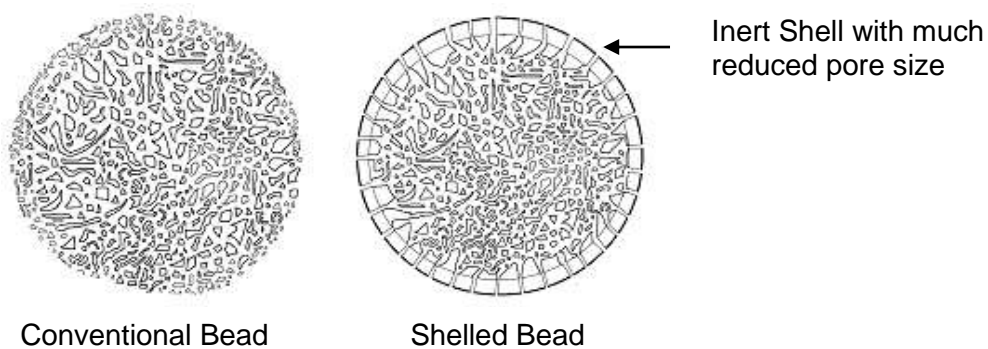
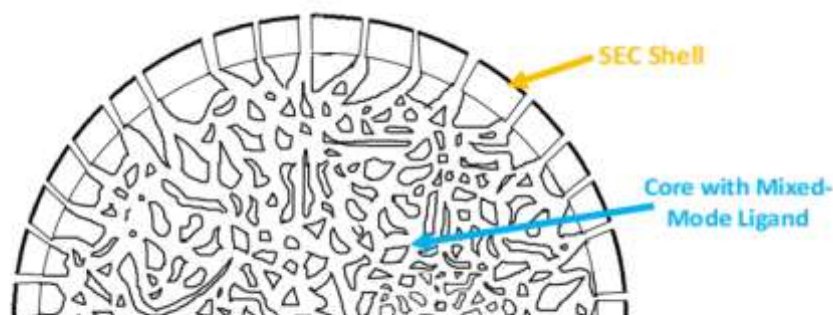


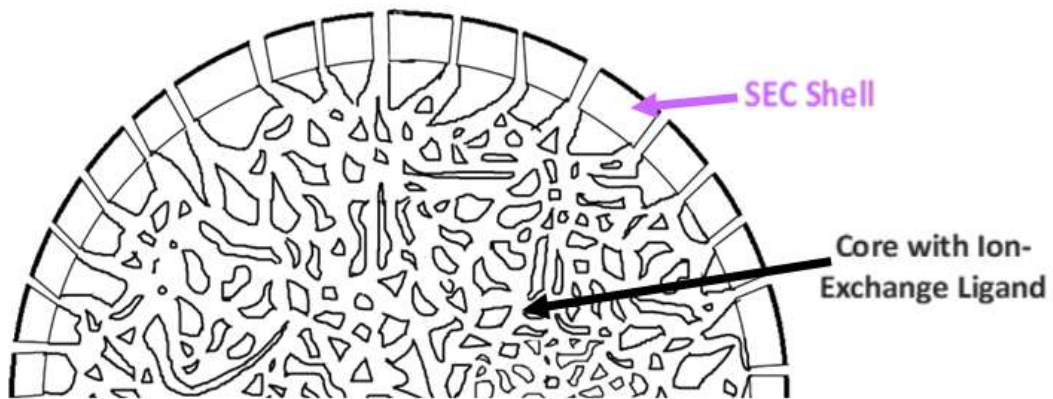
Illustration of the working mechanism of Shelled Chromatography Resin



**ViralPolish**

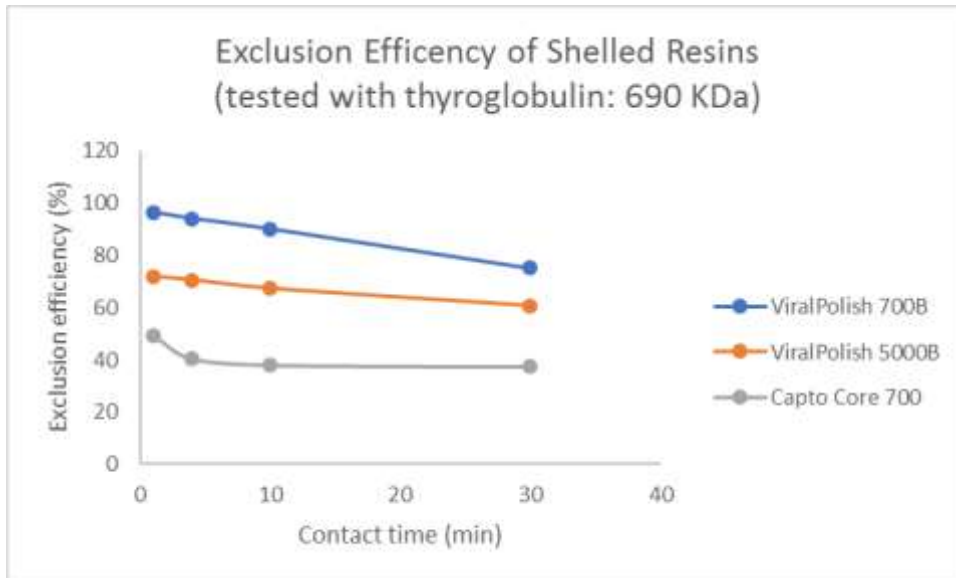
Shelled Mixed-Mode Resin	Application Guide	Key Features
ViralPolish™ 5000A ViralPolish™ 5000B	Good for lentivirus, adeno virus, VLPs and other viruses of large sizes	The inert out shell has molecular cut-off of 5000 KDa, 700 KDa and 400 KDa, respectively, to block viral particles of different sizes.
ViralPolish™ 700A ViralPolish™ 700B	Good for AAVs, other viruses and VLPs of similar sizes, plasmids, nucleic acids etc	Mixed-mode ligand is immobilised inside to capture impurities. "A" has mild hydrophobicity; "B" has stronger hydrophobicity.
ViralPolish™ 400A ViralPolish™ 400B	Good for certain vaccine antigens, large proteins etc	

**Shelled Ion-Exchange Resins:** Purifying viral materials in flow-through mode, i.e. impurities smaller than a virus is adsorbed to the charged groups inside the bead and intact virus passes through the column. It is a very gentle method with little loss of product.

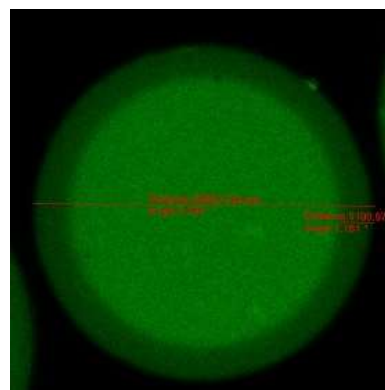


## SepFast DUO Ion-Exchange

Shelled IEX Resin	Application Guide	Key Features
SepFast™ DUO 5000 Q SepFast™ DUO 5000 S SepFast™ DUO 5000 DEA SepFast™ DUO 5000 CM	Good for lentivirus, adeno virus etc.	The inert out shell has molecular cut-off of 5000 KDa, 700 KDa and 400 KDa, respectively, to block viral particles of different sizes.
SepFast™ DUO 700 Q SepFast™ DUO 700 S SepFast™ DUO 700 DEA SepFast™ DUO 700 CM	Good for AAVs, other viruses and VLPs of similar sizes, plasmids	Ion-exchange ligand is immobilised inside to capture impurities.
SepFast™ DUO 400 Q SepFast™ DUO 400 S SepFast™ DUO 400 DEA SepFast™ DUO 400 CM	Good for certain vaccine antigens, large proteins etc	Q: strong anion-exchanger S: strong cation-exchanger DEA: weak anion-exchanger CM: weak cation-exchanger



**Conventional bead**



**Shelled bead**

## Confocal Microscopy Images

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