

Ceramic Apatite-Based Chromatography Media Publications List



Process Separations

Bulletin 6870



CHT™ Ceramic Hydroxyapatite

Kadlec K et al. (2016).

Characterization of ceramic hydroxyapatite surface by inverse liquid chromatography in aquatic systems.
Talanta 147, 44–49.



Moore L et al. (2016).

Production of recombinant cholera toxin B subunit in *Nicotiana benthamiana* using GENEWARE tobacco mosaic virus vector.
Methods Mol Biol 1385, 129–137.



Saito M et al. (2016).

Separation and analysis of charged isomers of monoclonal immunoglobulin G by ceramic hydroxyapatite chromatography.
Prep Biochem Biotechnol 46, 215–221.



Parambeth JC et al. (2015).

Purification and partial characterization of α 1-proteinase inhibitor in the common marmoset (*Callithrix jacchus*).
Res Vet Sci 99, 17–22.



Qu W et al. (2015).

Calcium-ion-modulated ceramic hydroxyapatite resin for the scalable purification of recombinant adeno-associated virus serotype 9.
J Chromatogr B Analyt Technol Biomed Life Sci 990, 15–22.



Cummings LJ et al. (2014).

Monoclonal antibody purification by ceramic hydroxyapatite chromatography.
Methods Mol Biol 1131, 241–251.



Masuda et al. (2014).

Purification of virus particles by ceramic hydroxyapatite chromatography on microfluidic chip.
IEEE-NANO 2014, 131–134.



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**CHT™ Ceramic Hydroxyapatite** (continued)**Aasim M et al. (2013).**

Utilization of surface energetics approach to understand protein interaction to ceramic hydroxyapatite.

J Chem Technol Biotechnol 88, 1,421–1,428.

**Barradas AM et al. (2013).**

Molecular mechanisms of biomaterial-driven osteogenic differentiation in human mesenchymal stromal cells.

Integr Biol (Camb) 5, 920–931.

**Brundin M et al. (2013).**

DNA binding to hydroxyapatite: a potential mechanism for preservation of microbial DNA.

J Endod 39, 211–216.

**Hsueh S-C et al. (2013).**

Purification and characterization of succinyl thiokinase from pig heart.

Journal of Marine Science and Technology 21, 493–500.

Liu Q et al. (2013).

Immobilisation of a hydroperoxide lyase and comparative enzymological studies of the immobilised enzyme with membrane-bound enzyme.

J Sci Food Agric 93, 1,953–1,959.

**Saito M et al. (2013).**

Scanning electron microscopy-based approach to understand the mechanism underlying the adhesion of dengue viruses on ceramic hydroxyapatite columns.

PLoS One 8, e53893.

**Schirmer EB et al. (2013).**

Reduction of product-related species during the fermentation and purification of a recombinant IL-1 receptor antagonist at the laboratory and pilot scale.

Biotechnol J 8, 946–956.

**Kaltenbrunner O et al. (2012).**

Monitoring ceramic hydroxyapatite media degradation using dynamic image analysis and uniaxial confined bulk compression.

Biotechnol J 7, 1,288–1,296.

**Saito M et al. (2012).**

Purification of anti-Japanese encephalitis virus monoclonal antibody by ceramic hydroxyapatite chromatography without proteins A and G.

Hybridoma (Larchmt) 31, 68–71.

**Baek JO et al. (2011).**

Production and purification of human papillomavirus type 33 L1 virus-like particles from *Spodoptera frugiperda* 9 cells using two-step column chromatography.

Protein Expr Purif 75, 211–217.



**CHT™ Ceramic Hydroxyapatite** (continued)**Hou Y et al. (2011).**

Classification of protein binding in hydroxyapatite chromatography: synergistic interactions on the molecular scale.
Anal Chem 83, 3,709–3,716.

**Morrison CJ et al. (2011).**

Purification of monomeric mAb from associated aggregates using selective desorption chromatography in hydroxyapatite systems.
Biotechnol Bioeng 108, 813–821.

**Premasukh A et al. (2011).**

Development of a GMP Phase III purification process for VB4-845, an immunotoxin expressed in *E. coli* using high cell density fermentation.
Protein Expr Purif 78, 27–37.

**Scott C (2011).**

Japan: both promising and problematic.
Bioprocess Int 9, 16–20.

**Snyder MA (2011).**

Working with a powerful and robust mixed-mode resin for protein purification.
Bioprocess Int 9, 50–53.

**Snyder MA et al. (2011).**

Surface neutralization system.
Pharmaceutical Technology 23, 42–48.

**Chen J et al. (2010).**

The distinctive separation attributes of mixed-mode resins and their application in monoclonal antibody downstream purification process.
J Chromatogr A 1217, 216–224.

**Liu HF et al. (2010).**

Recovery and purification process development for monoclonal antibody production.
MAbs 2, 480–499.

**Morrison CJ et al. (2010).**

Unique selectivity windows using selective displacers/eluents and mobile phase modifiers on hydroxyapatite.
J Chromatogr A 1217, 6,484–6,495.

**Pinto G et al. (2010).**

Hydroxyapatite as a concentrating probe for phosphoproteomic analyses.
J Chromatogr B Analyt Technol Biomed Life Sci 878, 2,669–2,678.



**CHT™ Ceramic Hydroxyapatite** (continued)**Schmoeger E et al. (2010).**

Adsorption of plasmid DNA on ceramic hydroxyapatite chromatographic materials.
J Sep Sci 33, 3,125–3,136.

**Vormbrock I et al. (2010).**

Targeting phosphoprotein profiling by combination of hydroxyapatite-based phosphoprotein enrichment and SELDI-TOF MS.
Arch Physiol Biochem 116, 181–187.

**Alvares K et al. (2009).**

Echinoderm phosphorylated matrix proteins UTMP16 and UTMP19 have different functions in sea urchin tooth mineralization.
J Biol Chem 284, 26,149–26,160.

**Cao ZJ et al. (2009).**

Characterization of a novel *Stenotrophomonas* isolate with high keratinase activity and purification of the enzyme.
J Ind Microbiol Biotechnol 36, 181–188.

**Cannillo V et al. (2008).**

Production and characterization of plasma-sprayed TiO₂-hydroxyapatite functionally graded coatings.
J Eur Ceram Soc 28, 2,161–2,169.

**Kowalowka M et al. (2008).**

Extracellular superoxide dismutase of boar seminal plasma.
Reprod Domest Anim 43, 490–496.

**Mathis KJ et al. (2008).**

High yield purification of soluble guanylate cyclase from bovine lung.
Protein Expr Purif 60, 58–63.

**Moro A et al. (2008).**

Single-step purification of pepsin-derived monoclonal antibody fragments from crude murine ascitic fluids by ceramic hydroxyapatite high-performance liquid chromatography.
J Biochem 144, 733–739.

**Nishihama S et al. (2008).**

Micro-flow injection system for the urinary protein assay.
Talanta 74, 1,350–1,354.



**CHT™ Ceramic Hydroxyapatite** (continued)**Wensel DL et al. (2008).**

High-throughput screening of chromatographic separations: III. Monoclonal antibodies on ceramic hydroxyapatite.
Biotechnol Bioeng 100, 839–854.

**Yan Q et al. (2008).**

Purification and properties of a novel beta-glucosidase, hydrolyzing ginsenoside Rb1 to CK, from *Paecilomyces* Bainier.
J Microbiol Biotechnol 18, 1,081–1,089.

**Goodin JL et al. (2007).**

Purification and protective efficacy of monomeric and modified *Yersinia pestis* capsular F1-V antigen fusion proteins for vaccination against plague.
Protein Expr Purif 53, 63–79.

**McCue JT et al. (2007).**

Use of an alternative scale-down approach to predict and extend hydroxyapatite column lifetimes.
J Chromatogr A 1165, 78–85.

**Shi XL et al. (2007).**

High-level expression and purification of recombinant human catalase in *Pichia pastoris*.
Protein Expr Purif 54, 24–29.

**Rodrigues T et al. (2006).**

Screening anion-exchange chromatographic matrices for isolation of onco-retroviral vectors.
J Chromatogr B Analyt Technol Biomed Life Sci 837, 59–68.

**Schlatterer JC et al. (2006).**

Purification of prostaglandin D synthase by ceramic- and size exclusion chromatography.
Prostaglandins Other Lipid Mediat 81, 80–89.

**CFT™ Ceramic Fluoroapatite****Zhang K and Liu X (2016).**

Mixed-mode chromatography in pharmaceutical and biopharmaceutical applications.
J Pharm Biomed Anal 128, 73–88.

**Islam T and Fernández-Lahore M (2015).**

A modular approach to multifunctional polypeptide/ceramic fluorapatite-based self-assembled system in affinity chromatography for the purification of human immunoglobulin G.
J Mol Recognit 28, 191–200.





CFT™ Ceramic Fluoroapatite (continued)

Islam T et al. (2014).

A novel strategy for the purification of a recombinant protein using ceramic fluorapatite-binding peptides as affinity tags.

J Chromatogr A 1339, 26–33.



Gao D et al. (2013).

Evaluating antibody monomer separation from associated aggregates using mixed-mode chromatography.

J Chromatogr A 1294, 70–75.



Hilbrig F and Freitag R (2012).

Isolation and purification of recombinant proteins, antibodies and plasmid DNA with hydroxyapatite chromatography.

Biotechnol J 7, 90–102.



Ng PK et al. (2010).

Development of fluoroapatite chromatography for the purification of monoclonal antibody.

J Sep Sci 33, 2,762-2,767.



Schubert S and Freitag R (2009).

Investigation of the interaction mechanism of the recombinant human antibody MDJ8 and its fragments with chromatographic apatite phases.

J Chromatogr A 1216, 3,831–3,840.



Schubert S and Freitag R (2007).

Comparison of ceramic hydroxy- and fluoroapatite versus Protein A/G-based resins in the isolation of a recombinant human antibody from cell culture supernatant.

J Chromatogr A 1142, 106–113.



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