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(71) Applicant *(for all designated States except US)*: **BIOCHEMIE GESELLSCHAFT M.B.H.** [AT/AT]; A-6250 Kundl (AT).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **ALLIGER, Peter** [DE/AT]; Lindenallee 20, A-6330 Kufstein (AT). **PALMA, Norbert** [IT/AT]; Kleinsoell 127, A-6252 Breitenbach a. Inn (AT).

(74) Agent: **GROS, Florent**; Novartis AG, Corporate Intellectual Property, Patent and Trademark Department, CH-4002 Basel (CH).

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(54) Title: CHROMATOGRAPHIC PURIFICATION OF RECOMBINANT HUMAN ERYTHROPOIETIN

(57) Abstract: The invention provides a method for recovering and purifying recombinant human erythropoietin (rhEpo) from a cell culture medium comprising host cells, which method comprises the steps of: (a) removing host cells, cellular constituents and debris from the cell culture medium by centrifugation using a disc stack separator followed by a depeth filtration step to obtain a clarified culture medium supernatant; (b) adjusting the conductivity of the supernatant to 5 mS/cm or less, and a pH of between about 7.0 and 8.0; (c) applying the supernatant from step (b) to a column comprising an anion exchange chromatographic medium, washing the column, eluting the rhEpo from the column, and collecting the peak fraction (s) that contain rhEpo; (d) subjecting the combined peak fractions from step (c) to a reverse phase chromatography step using a polystyrene resin that can be run under medium pressure (< 10 bar) and is resistance to high concentrations of NaOH, such as Source 30RPC, the rhEpo being eluted using a linear gradient of an organic solvent; (e) applying one or more fractions eluted in step (d) which contain rhEpo to a column comprising Q-Seph HP anion exchange chromatographic media, washing the column, and eluting the rhEpo using a linear salt gradient; (f) selecting one or more fractions eluted in step (e) which contain rhEpo based on degree of sialylation of the rhEpo; and (g) subjecting one or more fractions eluted in step (f) which contain rhEpo by one or more size exclusion chromatographic steps using Superdex 75 prep grade to remove potential dimers and higher aggregates; and collecting the eluate containing rhEpo.