



(51) International Patent Classification:

C40B 50/16 (2006.01) **C07K 1/04** (2006.01)
C40B 20/04 (2006.01) **C07K 17/00** (2006.01)
C40B 20/08 (2006.01)

(21) International Application Number:

PCT/SG2009/000258

(22) International Filing Date:

22 July 2009 (22.07.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(71) Applicant (for all designated States except US): **AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH** [SG/SG]; 1 Fusionopolis Way, #20-10, Connexis, Singapore 138632 (SG).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HEATH, James R.** [US/SG]; c/o Institute of Bioengineering and Nanotechnology, 31 Biopolis Way, The Nanos, #04-01, Singapore 138669 (SG). **LEE, Su Seong** [KR/SG]; c/o Institute of Bioengineering and Nanotechnology, 31 Biopolis Way, The Nanos, #04-01, Singapore 138669 (SG). **LIM, Jaehong** [KR/SG]; c/o Institute of Bioengineering and Nanotechnology, 31 Biopolis Way, The Nanos, #04-01, Singapore 138669 (SG). **CHA, Junhoe** [KR/SG]; c/o Institute of Bioengineering and Nanotechnology, 31 Biopolis Way, The Nanos, #04-01, Singapore 138669 (SG). **TAN, Sylvia** [SG/SG]; c/o Institute of Bioengineering and Nanotechnology, 31 Biopolis Way, The Nanos, #04-01, Singapore 138669 (SG). **YEO, Shi Yun** [SG/SG]; c/o Institute of Bioengineering and Nanotechnology, 31 Biopolis Way, The Nanos, #04-01, Singapore 138669 (SG).

(74) Agent: **YU SARN AUDREY & PARTNERS**; 24 Raffles Place, #27-01 Clifford Centre, Singapore 048621 (SG).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

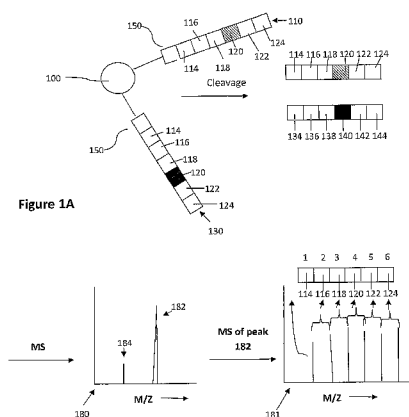
Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- of inventorship (Rule 4.17(iv))

Published:

- with international search report (Art. 21(3))
- with sequence listing part of description (Rule 5.2(a))

(54) Title: DIFFERENTIATION OF ISOBARIC AMINO ACIDS AND OTHER SPECIES



(57) Abstract: Techniques for differentiating isobaric species are described. An isobaric species may be substituted with a tagging species identified using mass spectrometry. The isobaric species may be a subunit of a first polymer having a defined sequence, e.g., the isobaric species may be an amino acid in a protein or a peptide sequence. A tagging species may be substituted for the isobaric species in a second polymer having an otherwise identical sequence as the first polymer. The second polymer may have the same number of sequences as the first polymer, and substantially the same sequence of subunits, with a few exceptions such as the tagging species for the isobaric species. The first polymer and the second polymer may be prepared in the same reaction vessel. A polymer/protein of defined subunit sequence containing an isobaric species or a tagging species may be analyzed by mass spectrometry to determine the sequence.

