(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
12 December 2002 (12.12.2002)

PCT

(10) International Publication Number
WO 02/099090 A1

(51) International Patent Classification[7]: C12N 9/00

(21) International Application Number: PCT/AU02/00739

(22) International Filing Date: 7 June 2002 (07.06.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
PR 5527 7 June 2001 (07.06.2001) AU

(71) Applicant *(for all designated States except US)*: **JOHNSON & JOHNSON RESEARCH PTY LTD** [AU/AU]; Level 4, 1 Central Avenue, Eveleigh, New South Wales 1430 (AU).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **SUN, Lun-Quan** [AU/AU]; 8 Banksia Street, EASTWOOD, New South Wales 2122 (AU). **WANG, Li** [AU/AU]; 8 Banksia Street, EASTWOOD, New South Wales 2122 (AU). **TURNER, Rachel, Jane** [AU/AU]; 54 Bellevue Street, GLEBE, New South Wales 2037 (AU). **SARAVOLAC, Edward, George** [CA/AU]; 30 Allen Street, Leichhardt, New South Wales 2040 (AU). **DASS, Crispin, Rajnish** [FJ/AU]; 35/1-9 Terrace Road, DULWHICH HILL, New South Wales 2203 (AU).

(74) Agent: **BLAKE DAWSON WALDRON PATENT SERVICES**; Level 39, 101 Collins Street, Melbourne, Victoria 3000 (AU).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 02/099090 A1

(54) Title: BCL-2 DNAZYMES

(57) Abstract: The present invention provides DNAzymes which specifically cleaves mRNA transcribed from a member of the bcl-2 gene family selected from the group consisting of bcl-2, bcl-xl, bcl-w, bfl-1, brag-1, Mcl-1 and A1. The DNAzymes comprise (a) a catalytic domain that has the nucleotide sequence GGCTAGCTACAACGA (SEQ ID NO.1) and cleaves mRNA at any purine: pyrimidine cleavage site at which it is directed, (b) a binding domain contiguous with the 5' end of the catalytic domain, and (c) another binding domain contiguous with the 3' end of the catalytic domain. The binding domains are complementary to, and therefore hybridise with, the two regions immediately flanking the purine residue of the cleavage site within the bcl-2 gene family mRNA, at which DNAzyme-catalysed cleavage is desired. Each binding domain is at least six nucleotides in length, and both binding domains have a combined total length of at least 14 nucleotides.