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(21) International Application Number: PCT/US99/08473 (22) International Filing Date: 22 April 1999 (22.04.99) (30) Priority Data: 60/122,054 1 May 1998 (01.05.98) US 60/094,462 28 July 1998 (28.07.98) US (71) Applicant (for all designated States except US): MAXYGEN, INC. [US/US]; 515 Galveston Drive, Redwood City, CA 94063 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): STEMMER, Willem, P., C. [NL/US]; 108 Kathy Court, Los Gatos, CA 95030 (US). CASTLE, Linda [US/US]; 784 Hans Avenue, Mountain View, CA 94040 (US). YAMAMOTO, Takashi [JP/US]; 42959 Nido Court, Fremont, CA 94539 (US). (74) Agents: QUINE, Jonathan, Alan; Law Offices of Jonathan Alan Quine, P.O. Box 458, Alameda, CA 94501 (US) et al.		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, 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, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, 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), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>
(54) Title: OPTIMIZATION OF PEST RESISTANCE GENES USING DNA SHUFFLING		
(57) Abstract This invention provides methods of obtaining pest resistance genes that are improved over naturally occurring genes for use in conferring upon plants resistance to pests. The methods involve the use of DNA shuffling of pest resistance genes to produce libraries of recombinant pest resistance genes, which are then screened to identify those that exhibit the improved property or properties of interest.		