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(71) Applicant *(for all designated States except US)*: **AGENCY FOR SCIENCE TECHNOLOGY AND RESEARCH** [SG/SG]; 20 Biopolis Way, #07-01, Centros, Singapore 138668 (SG).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **WANG, Shu** [SE/SG]; c/o Institute of Bioengineering and Nanotechnology, 31 Biopolis Way, #04-01 The Nanos, Singapore_138669 (SG). **HOWLAND, Shanshan Wu** [SG/US]; 60 Wadsworth Street, Apt. 6C., Cambridge, MA 02142 (US). **ZENG, Jieming** [CN/SG]; c/o Institute of Bioengineering and Nanotechnology, 31 Biopolis Way, #04-01 The nanos, Singapore_138669 (SG). **MA, Nan** [CN/DE]; Schillingallee 70, Keller, Rm23, FKGO, Universat Rostock, 18057 Rostock (DE).

(74) Agent: **YU SARN AUDREY & PARTNERS**; 190 Middle Road, #12-04, Singapore 188979 (SG).

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(54) Title: RECOMBINANT POLYPEPTIDE USEFUL FOR NEUROTROPHIN RECEPTOR MEDIATED GENE DELIVERY AND AS NEUROTROPHIN AGONIST

(57) Abstract: The invention provides a novel recombinant polypeptide that comprises a nucleic acid binding element and a hairpin motif that selectively binds to a neurotrophin receptor. The recombinant polypeptide may be use for neurotrophin receptor mediated delivery of nucleic acid, including therapeutic DNA, bound to the recombinant polypeptide. In one embodiment, the hairpin motif is a hairpin motif of a neurotrophin, such as nerve growth factor, brain derived neurotrophic factor, neurotrophin 3 and neurotrophin 4/5. The hairpin motif is also a neurotrophin agonist and therefore may be used to treat any disorder responsive to neurotrophin treatment, such as neurological disorders and tumour. In one embodiment the agonist comprises a hairpin motif that selectively binds to a neurotrophin receptor and a positively charged binding domain which is believed to enhance receptor binding by binding to a negatively charged cell membrane.