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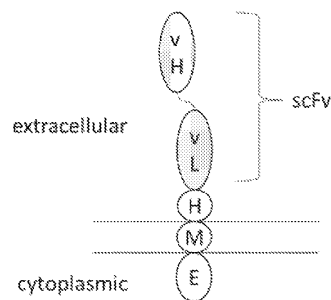
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63/003,120 31 March 2020 (31.03.2020) US(71) Applicant: **WALKING FISH THERAPEUTICS**
[US/SA]; 280 Utah Avenue, Suite 250, South San Francisco, California 94080 (US).(72) Inventors: **BOYLE, Kathleen**; c/o Walking Fish Therapeutics, 280 Utah Avenue, Suite 250, South San Francisco, California 94080 (US). **PARK, Hangil**; c/o Walking Fish Therapeutics, 280 Utah Avenue, Suite 250, South San Francisco, California 94080 (US). **KOTHAKOTA, Srinivas**; c/o Walking Fish Therapeutics, 280 Utah Avenue, Suite 250, South San Francisco, California 94080 (US). **SELBY, Mark**; c/o Walking Fish Therapeutics, 280 Utah Avenue, Suite 250, South San Francisco, California 94080 (US). **BRENNAN, Thomas**; c/o Walking Fish Therapeutics, 280 Utah Avenue, Suite 250, South San Francisco, California 94080 (US).tics, 280 Utah Avenue, Suite 250, South San Francisco, California 94080 (US). **WILLIAMS, Lewis T.**; c/o Walking Fish Therapeutics, 280 Utah Avenue, Suite 250, South San Francisco, California 94080 (US).(74) Agent: **MAHAN, Amy L.**; c/o McDermott Will & Emery LLP, 500 North Capitol Street, NW, Washington, District of Columbia 20001 (US).

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(54) Title: MODIFIED B CELLS AND METHODS OF USE THEREOF

Example of cBCR on cell membrane



vH: heavy chain variable region
vL: light chain variable region
H: hinge region
M: transmembrane domain
E: cytoplasmic signaling domain

FIG. 1

(57) Abstract: The present invention relates to genetically modified B cells and their uses thereof, for example, for the treatment of a variety of diseases and disorders, including cancer, heart disease, inflammatory disease, muscle wasting disease, neurological disease, and the like. In certain embodiments, the invention relates to an isolated modified B cell ("CAR-B cell"), capable of expressing a chimeric receptor ("CAR-B receptor"), wherein said chimeric receptor comprises (a) an extracellular domain; (b) a transmembrane domain; and (c) a cytoplasmic domain that comprises at least one signaling domain. In various embodiments, the invention comprises an isolated modified B cell, wherein said B cell is capable of expressing and secreting a payload, wherein the payload is not naturally expressed in a B cell or is expressed at higher levels than is naturally expressed in a B cell. In various embodiments, the payload is an antibody or fragment thereof.

[Continued on next page]

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