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(71) Applicant *(for all designated States except US)*: **ISTITUTO DI RICERCHE DI BIOLOGIA MOLECOLARE P. ANGELETTI SPA** [IT/IT]; Via Pontina KM 30.600, I-00040 Pomezia (IT).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **CILIBERTO, Gennaro** [IT/IT]; IRBM, Via Pontina KM. 30.600, I-00040 Pomezia (IT). **LA MONICA, Nicola** [IT/IT]; IRBM, Via Pontina KM. 30.600, I-00040 Pomezia (IT). **MENNUNI, Carmela** [IT/IT]; IRBM, Via Pontina KM. 30.600, I-00040 Pomezia (IT). **SCARSELLI, Elisa** [IT/IT]; IRBM, Via Pontina KM. 30.600, I-00040 Pomezia (IT).

(74) Agent: **HUSSAIN, Deeba**; European Patent Department, Hertford Road, Hoddesdon Hertfordshire EN11 9BU (GB).

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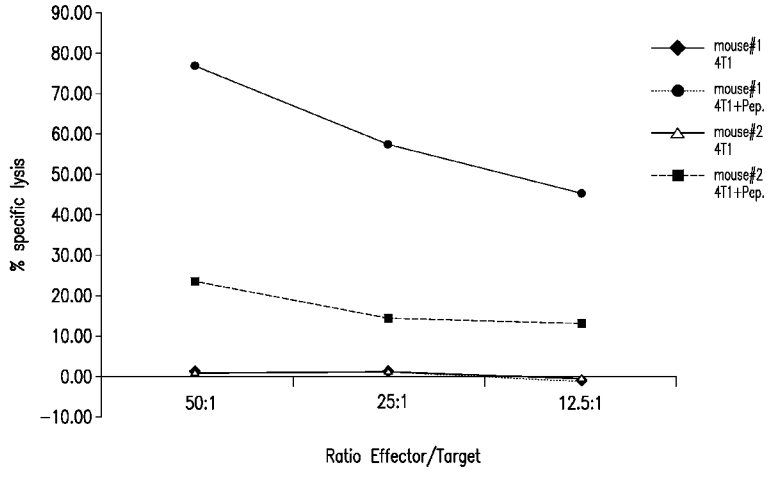
Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

[Continued on next page]

(54) **Title:** TELOMERASE REVERSE TRANSCRIPTASE FUSION PROTEIN, NUCLEOTIDES ENCODING IT, AND USES THEREOF



(57) **Abstract:** Polynucleotides encoding telomerase reverse transcriptase (TERT) fusion proteins are provided, the TERT fusion proteins comprising a TERT protein, or functional variant thereof, fused to a substantial portion of the B subunit of heat labile enterotoxin (LTB). TERT variants useful in TERT-LTB fusion proteins of the invention comprise mutations that function to eliminate telomerase catalytic activity. The polynucleotides of the present invention can elicit an immune response in a mammal, which, in preferred embodiments, is stronger than the immune response elicited by a wild-type TERT. TERT expression is commonly associated with the development of human carcinomas. The present invention provides compositions and methods to elicit or enhance immunity to the protein product expressed by the TERT tumor-associated antigen, wherein aberrant TERT expression is associated with a carcinoma or its development. This invention specifically provides adenoviral vector and plasmid constructs carrying polynucleotides encoding TERT fusion proteins and TERT variants and discloses their use in vaccines and pharmaceutical compositions for preventing and treating cancer.

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