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(71) Applicant: **WORLD BIOTECH REGENERATIVE MEDICAL GROUP LIMITED** [CN/CN]; Suite 502, Chuang's Tower, 30 Connaught Road, Central, Hong Kong (CN).

(72) Inventors: **MAN, Wing Yin Cornelia**; Suite 502, Chuang's Tower, 30 Connaught Road, Central, Hong Kong (CN). **MA, Wei**; Suite 502, Chuang's Tower, 30 Connaught Road, Central, Hong Kong (CN). **GAO, Quanguai**; Suite 502, Chuang's Tower, 30 Connaught Road, Central, Hong Kong (CN).

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(54) Title: SYSTEMS FOR THE DETECTION OF TARGETED GENE VARIATIONS AND VIRAL GENOMES AND METHODS OF PRODUCING AND USING SAME

(57) Abstract: Provided are systems for the detection of targeted gene variations and viral genomes and methods for producing and using the same. Methods include screening of individuals having higher risk of developing dementia (e.g. Alzheimer's disease and Parkinson's disease) and weaker anti-oxidative stress systems who are more vulnerable to coronavirus infection. Also provided are methods for screening for coronavirus genomes for early infection detection without the need of special lab equipment. Isothermal amplification techniques can be used, removing the need of a thermal PCR machine. LAMP technique may be used, significantly changing the pH value of the reaction mix. By including a pH indicator, the successful amplification of target DNA can be visualized, removing the need of detecting DNA products using lab detection systems. Specific primers sets are designed for each target SNP and genome of coronaviruses. This ensures high specificity of the LAMP reaction.



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