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(54) Title: CRISPR-CAS12A BASED TARGET DETECTION

(57) Abstract: Disclosed is a Cast 2a protein having an amino acid sequence selected from the group consisting of SEQ ID NO: 3 (Crm-Cas12a) and SEQ ID NO: 4 (SrmCas12a) or a Cas12a protein of the same clade; where the Cas12a protein comprises a maltose-binding protein (MBP) tag, and a CRISPR RNA (crRNA) for detecting Brucella. Also disclosed is a detection kit for Brucella comprising the crRNA as disclosed herein and a method of detecting a nucleic acid of Brucella in a sample using the detection kit. Further disclosed is a CRISPR-Cas12a composition comprising the Cast 2a protein and a crRNA comprising a direct repeat (DR) and a guide domain (protospacer), wherein the DR and the guide domain are connected in the 5' to 3' direction of the crRNA, and the crRNA is configured to target a nucleic acid of a predetermined target sequence and form a complex with the Cast 2a protein as disclosed herein.



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