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(54) Title: A BUFFER FOR A CAS PROTEIN AND A METHOD OF USING THEREOF

(57) Abstract: Disclosed is a buffer for enhancing enzymatic cleavage activity of a Cas protein, 5 comprising one or more components selected from the group consisting of: a salt selected from the group consisting of monopotassium phosphate (KH_2PO_4), sodium formate (HCOONa), calcium acetate ($\text{Ca}(\text{C}_2\text{H}_3\text{O}_2)_2$), sodium acetate (CH_3COONa), ammonium sulfate ($(\text{NH}_4)_2\text{SO}_4$), potassium thiocyanate (KSCN), calcium chloride (CaCl_2), sodium chloride (NaCl), Nickel(II) nitrate ($\text{Ni}(\text{NO}_3)_2$), lithium sulfate (LiSO_4); an organic solvent 0 selected from the group consisting of Tween 20, Dithiothreitol (DTT), Phenylmethylsulfonyl fluoride (PMSF), 2-Methyl-2,4-pentanediol (MPD), acetone, dimethylsulfoxide (DMSO), ethylene glycol, methanol, 2-propanol, EDTA, urea; and a protein which is casein. Also disclosed is a detection kit for a nucleic acid, comprising the buffer as disclosed herein, a Cas protein and a crRNA. Further disclosed is a method 5 of detecting a nucleic acid in a sample by CRISPR-cas, using the detection kit as disclosed herein.

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