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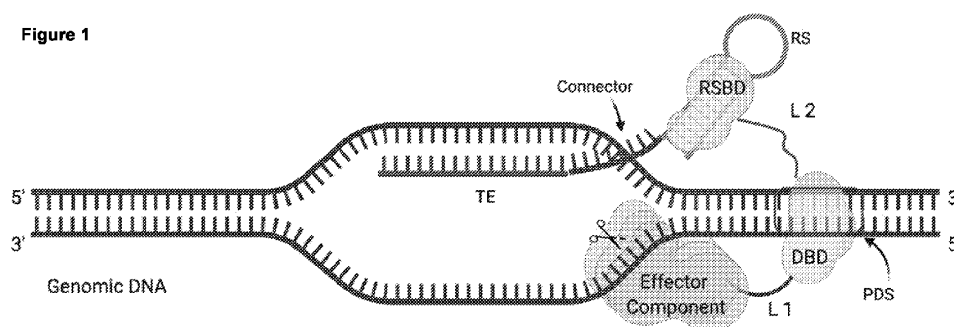
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(54) Title: SYNTHETIC GENOME EDITING SYSTEM

Figure 1



(57) Abstract: The present invention provides a synthetic, modular system for DNA modification as may be employed for genome editing comprising a targeting nucleic acid possessing both DNA targeting ability and ability to bind a recognition module of a modular polypeptide component, where the modular polypeptide component also includes an effector component and a short peptide DNA-binding sequence (DBD) which binds a pre-determined sequence (PBS) in the target. The DBD may preferably be no more than a 15 mer and serves to destabilize the structure of a targeted dsDNA upon binding thereby facilitating the desired DNA modification. The effector component may, for example, be an artificial nickase comprising linked self-assembling peptides thereby providing a complete genome-editing system of advantageous small size for vector delivery to cells.

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