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Box III Text of the abstract

The present invention relates to the technical field of genetic engineering, and provides a recombinant bacterium for synthesizing odd and even carbon chain monomer copolymerized medium-chain-length polyhydroxyalkanoates (mcl-PHA). The recombinant bacterium can be fermented under the condition of using glucose as a sole carbon source, to synthesize mcl-PHA in which odd and even carbon chain monomers are copolymerized. Said recombinant bacterium is prepared by transferring a recombinant plasmid pZQ12 and a recombinant plasmid pQQ05 into *Escherichia coli* LZ05, wherein the recombinant plasmid pZQ12 includes a *cimA* gene, a *leuBCD* gene, an *ilvA* gene, and a *thrA*BC* gene. Said enzyme genes provide more precursor-propionyl coenzyme A for the synthesis of odd carbon chain monomers.