second promoter is operably linked to the 5'-terminus of the fusion gene. In some examples the first promoter is operably linked to the 5'-terminus of the second promoter, the second promoter is operably linked to the 5'-terminus of the modified UTR, and the modified UTR is operably linked to the 5'terminus of the fusion gene.

In one aspect, the disclosure provides a nucleic acid, comprising a first and a second promoter, wherein either the first promoter or the second promoter is an inducible promoter and is inducible by a small molecule; the first and second promoters are operably linked to a first gene; and the first gene encodes a protein involved in the synthesis of 3-hydroxypropionic acid (3-HP), a salt of 3-HP, or coenzyme B12, wherein at least the 10 codons at the 5'-terminus of the first gene are optimized for translation in *Pseudomonas denitrificans*, wherein the codons optimized for translation in *Pseudomonas denitrificans* comprise a sequence that is at least 95% identical to SEQ ID NO: 30 (Opt-3).

In one example, the disclosure provides for a nucleic acid, comprising, consisting of, or consisting essentially of a first and a second promoter, wherein the first promoter is an inducible promoter and is inducible by a small molecule; the first and second promoters are operably linked to a first gene; and the first gene encodes a protein involved in the synthesis of 3-hydroxypropionic acid (3-HP)(or a salt thereof) or coenzyme B12.

In some examples, the first gene encodes a protein involved in the synthesis of 3-hydroxypropionic acid (3-HP) (or a salt thereof) and is selected from the group consisting of a glycerol dehydratase, a glycerol dehydratase reactivase, and an aldehyde dehydrogenase. In some cases, the first gene comprises at least one gene selected from the group consisting of dhaB1, dhaB2, dhaB3, gdrA, gdrB, and kgsA. In some instances, the first gene comprises a dhaB1 gene, a dhaB2 gene, a dhaB3 gene, a gdrA gene, and a gdrB gene.

In some examples, the first gene is dhaB1, and the sequence comprises, consists of, or consists essentially of a sequence that is at least 95% identical to SEQ ID NO: 1. In some cases, the first gene is dhaB2, and the sequence comprises, consists of, or consists essentially of a sequence that is at least 95% identical to SEQ ID NO: 2. In some instances, the first gene is dhaB3, and the sequence comprises, consists of, or consists essentially of a sequence that is at least 95% identical to SEQ ID NO: 3.

In some examples, the first gene is gdrA, and the sequence comprises, consists of, or consists essentially of a sequence that is at least 95% identical to SEQ ID NO: 4. In some cases, the first gene is grdB and the sequence comprises, consists of, or consists essentially of a sequence that is at least 95% identical to SEQ ID NO: 5.

In some examples, the first gene comprises, consists of, or consists essentially of an aldehyde dehydrogenase gene. In some instances, the aldehyde dehydrogenase is kgsA. In some cases, kgsA comprises, consists of, or consists essentially of a sequence that is at least 95% identical to SEQ ID NO: 6.