A system for improved production titers in fermentations

The invention provides a genetically modified micro-organism for intracellular biosynthesis of a cellular metabolite, comprising a synthetic error correction system having a penalty gene, whose expression leads to arrested growth or cell death (e.g. a toxin gene) in combination with a survival gene, whose expression provides an antidote that restores cell viability and normal growth (e.g. a cognate antitoxin gene). Alternatively, the system has a survival gene, alone, whose expression is essential for growth (i.e. essential gene). The synthetic error correction system further comprises a biosensor, whose function is to induce expression of the survival gene which leads to cell growth, only, when the cell produces a pre-defined level of a given metabolite. The invention further encompasses: a method for producing the genetically modified micro-organism; a method for producing a cellular metabolite with the genetically modified micro-organism; and use of the genetically modified micro-organism for producing a cellular metabolite.