Docket #: S15-054

BAP1 – E. coli strain for producing complex natural products

Stanford researchers developed BAP1, a strain of *E. coli* designed to produce complex natural products (particularly polyketides and non-ribosomal peptides) that might otherwise be inaccessible. The compounds capable of being produced by BAP1 span a wide array of applications, the most notable being antibiotics, anti-cancer agents, and agrochemicals.

Stage of Research
The inventors first demonstrated the utility of BAP1 in 2001 when they used it to synthesize complex polyketides by converting propionate into the antibiotic erythromycin.

Applications

- **Synthetic biology** – production of polyketide and nonribosomal peptide (and potentially other) complex natural products and agrochemicals with commercial value

Advantages

- **Scalable, economically-feasible production** – polyketides and other compounds can be produced in *E. coli* at lower cost than in their native organisms

Publications

- B.A. Pfeifer, S.J. Admiraal, H. Gramajo, D.E. Cane, C. Khosla. Biosynthesis of Complex Polyketides in a Metabolically Engineered Strain of *E. coli* *Science* 291, 1790-2 (2001)
- Genetic engineering speeds development of new antibiotics, *Stanford Report* March 2, 2001.

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