The use of Bioinformatics for rapid and low cost enzyme development

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Enzyme Development & Manufacturing
Concept to routine manufacture in less than 12 months
Differentiate from your competitors

Explore previously unobtainable enzyme ideas

Speed up your time to market
Concept to routine manufacture in less than 12 months
“Our commercially focused approach from concept to routine manufacture of bespoke enzyme products enables us to mitigate risks by developing an enzyme process that is technically and commercially robust. We call this our “Design for Manufacture” approach.”

Dr Jonathan Wood,
Business Development Manager
Technology showcase

Prepare template DNA (plasmid DNA or PCR product)

Template DNA Addition

Consumable Set-Up

Pure His-tagged Protein

Instrument Run

Protein Synthesis Selection

Prepare template DNA

Protein Expression in the Buffer cartridge

Protein Purification with magnetic beads

Purified Protein
Design for Manufacture

Proof of concept

Royalty-free

Provision of Samples
Optimised for soluble, active enzyme

- 48 well micro fermentations
- Fully scalable
- Samples 8 weeks
50L – 20,000L fermentation capacity
Full Downstream Processing
Routine supply agreement
Global logistics

Your Exclusive Product
Accessing new enzymes for potential users by driving down costs and timescales

Limited only by your imagination...
Dairy Industry: Fermentation development and scale-up within 6 weeks for exploitation of a market opportunity

Major food company: Replacement of existing product with bespoke side activities

Flavour and Fragrance: Transfer, scale-up and routine manufacture of existing enzyme

Speciality chemical: Development of a recombinant version of a plant enzyme to overcome seasonal supply issues

Biosensor application: Replacement of a wild type high purity enzyme

Case Studies
BBSRC IB priorities

Limitations of cellular productivity
- Genotype to metabolic phenotype
- Improved bioprocesses
- Co-factor balance
- Toxicity of chemical products

Productive routes to chemicals
- Combinatorial pathways
- Biodiversity
- Metabolic Engineering
- Chimeric pathways
- Understanding/manipulating metabolism at macro scale

Sustainability and economics
- Optimisation of non-food crops/crop residue
- Alternative pathways with lower energy requirements
- Improving properties of biorenewable products
- Finding added value
- Municipal waste as a feedstock

Challenge of water in a biological system
- Systems approaches to integrate biology, chemistry & engineering
- Process intensification
- Dewatering
- Low water systems
- Product recovery
- Thermochemical approaches

Excellent scientific research through collaborative projects

New Feedstocks
- Platform Chemicals
- Flavour & Fragrances

New Pathways
- Bioenergy/fuels
- High value chemicals

New Products
- Biopharma Products
Prototype Networks for Industrial and BioEnergy (NIBB)