7.344 Directed Evolution: Engineering Biocatalysts
Spring 2008

Enzyme evolution by bacterial cell surface display

Olsen, M.J.; Stephens, D.; Griffiths, D.; Daugherty, P.; Georgiou, G.; Iverson, B.L. Function-based isolation of novel enzymes from a large library. *Nat. Biotechnol.* **2000**, *18*, 1071-1074.

Kim, Y.-S.; Jung, H.-C.; Pan, J.-G. Bacterial cell surface display of an enzyme library for selective screening of improved cellulose variants. *App. Environ. Microbiol.* **2000**, *66(2)*, 788-793.

OmpT evolution

- What are the authors trying to do?
- How is the library formed any why do the authors chose this method?
- What is FRET? What is FACS?
- What are the results presented?
- What are the benefits and pitfalls of this method?

Bacterial surface display and screening of OmpT

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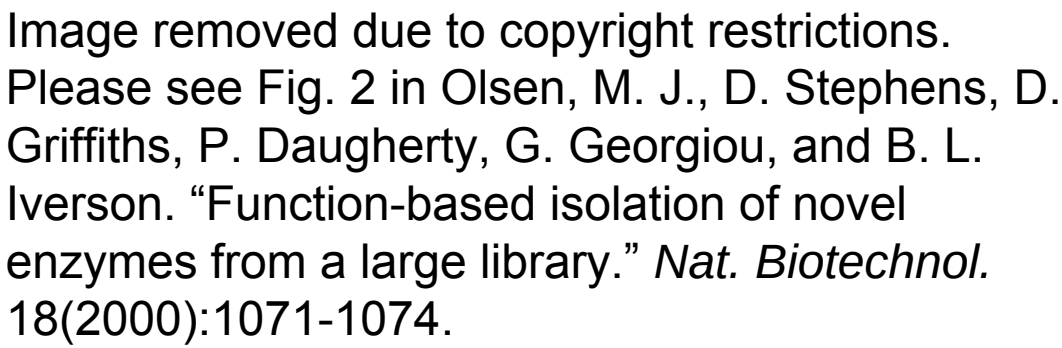
What is FRET?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Please see Fig. 2 in Olsen, M. J., D. Stephens, D. Griffiths, P. Daugherty, G. Georgiou, and B. L. Iverson. “Function-based isolation of novel enzymes from a large library.” *Nat. Biotechnol.* 18(2000):1071-1074.

What is FACS?

Diagram of Fluorescent-Activated Cell Sorting (FACS) removed due to copyright restrictions.