**Graphical abstract:**

Diagram

Description automatically generated

**Highlights:**

* Selection platforms in protein engineering can generate biochemical data.
* Selection can be harnessed as high-throughput biochemistry assays.
* Coupling NGS data analysis with selection identifies mutants of interest.
* A single residue in Phi29 DNA polymerase coordinates multiple enzyme processes.
* We demonstrate that directed evolution can be a tool to study biological function.