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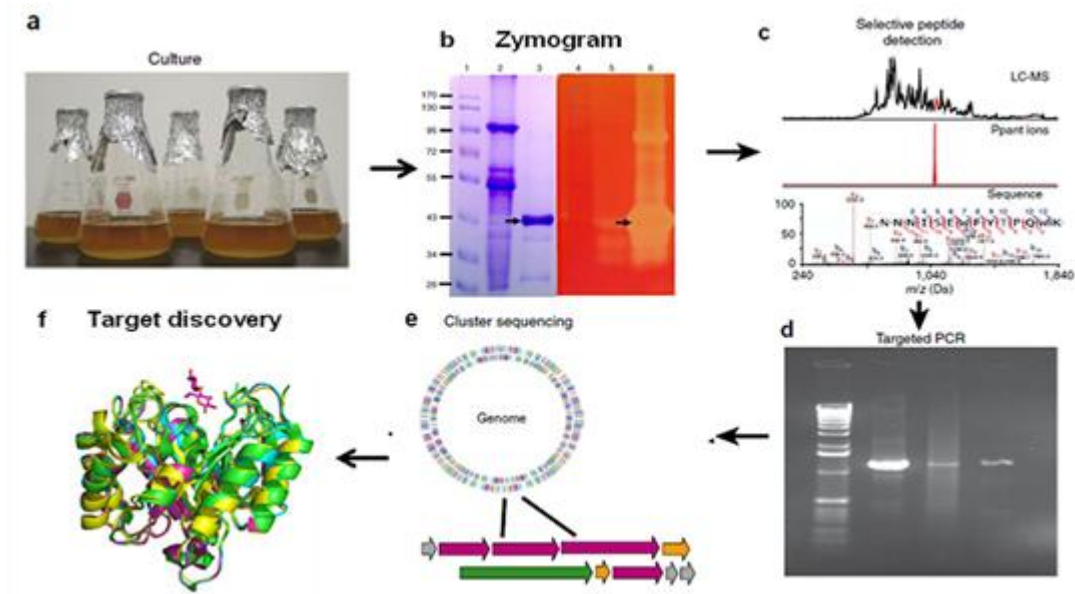
## Research Interests

Our research interests focus on development of enzymes on emissions of bioenergy, biorefinery, bioremediation and functional bio-products. Aims to establish and discover the novel genes through proteomics approaches. The platforms are including whole genome sequencing and analysis, high throughput proteomic screening, genetic and protein engineering. Our current research topics include: (1) Biodegradation of cellulose by synergistic cellulases system; (2) Development of high throughput analyzing platform for proteomes; (3) Genetic approach in improving production of valuable bio-products (4) System biology on deciphering the bioremediation process.

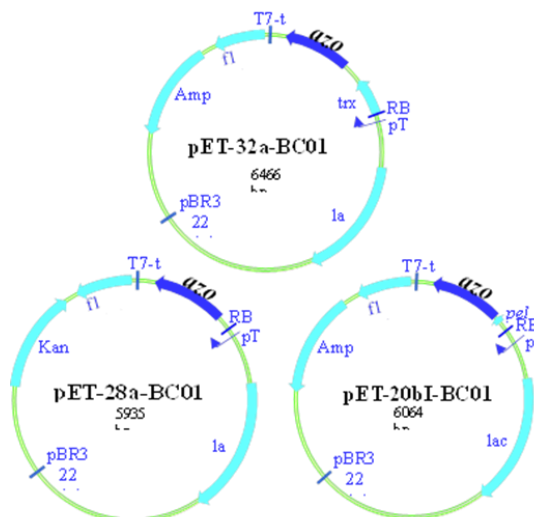
## Representative Publications

1. **I-Son Ng\***, Tingting Chen, Rong Lin, Xia Zhang, Chao Ni, Dongzhe Shun. "Decolorization of textile azo dye and Congo red by an isolated strain of the dissimilatory manganese-reducing bacterium *Shewanella xiamenensis* BC01," *Applied Microbiology and Biotechnology*, 2014, 98(5):2297-2308.
2. **I-Son Ng\***, Xiaoqin Chi, Xiaomin Wu, Ziwei Bao, Yinghua Lu, Jo-Shu Chang, Xueping Ling\*\* "Cloning and expression of Cel8A from *Klebsiella pneumoniae* in *Escherichia coli* and comparison to cel gene of *Cellulomonas uda*," *Biochemical Engineering Journal*, 2013, 78:53-58
3. Chiming Ye, **I-Son Ng\***, Keju Jing, Yinghua Lu. "Direct proteomic mapping for *Streptomyces roseosporus* NRRL11379 with precursor and insights into daptomycin biosynthesis," *Journal of Bioscience and Bioengineering*, 2014, 117(5):591-597
4. Yu Zhang, **I-Son Ng\***, Chuanyi Yao, Yinghua Lu. "An orthogonal array deciphering MRS medium requirements for an isolated *Lactobacillus rhamnosus* ZY with cell properties characterization," *Journal of Bioscience and Bioengineering*, 2014, DOI: 10.1016/j.jbiosc.2014.02.018
5. **I-Son Ng\***, Xuesong Zheng, Nan Wang, Bor-Yann Chen, Xia Zhang, Yinghua Lu. "Copper Response of *Proteus hauseri* Based on Proteomic and Genetic Expression and Cell Morphology Analyses," *Applied Biochemistry and Biotechnology*, 2014, DOI 10.1007/s12010-014-0892-4
6. **I-Son Ng**, Shau-Wei Tsai, Yu-Ming Ju, Su-May Yu\*, Tuan-hua David Ho\* "Dynamic synergistic effect on *Trichoderma reesei* cellulases by novel beta-glucosidases from Taiwanese fungi," *Bioresource Technology*, 2011, 102:6073-6081.

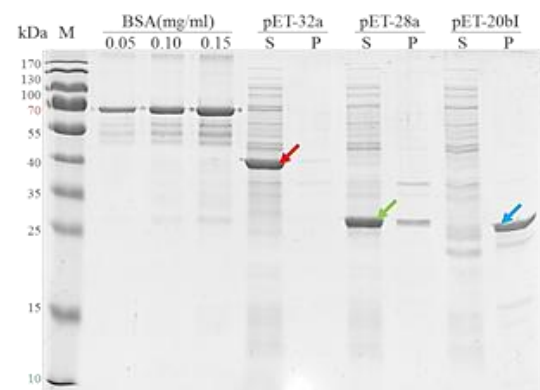
- High throughput screening for functional genes by proteomics approach



- Heterologous over-expression of novel genes in *Escherichia coli* with molecular docking and enzyme characterization

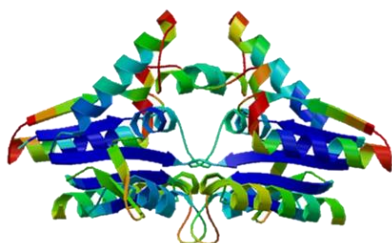


**Fig. 1** Maps of BC01-azoR constructed in different vectors:

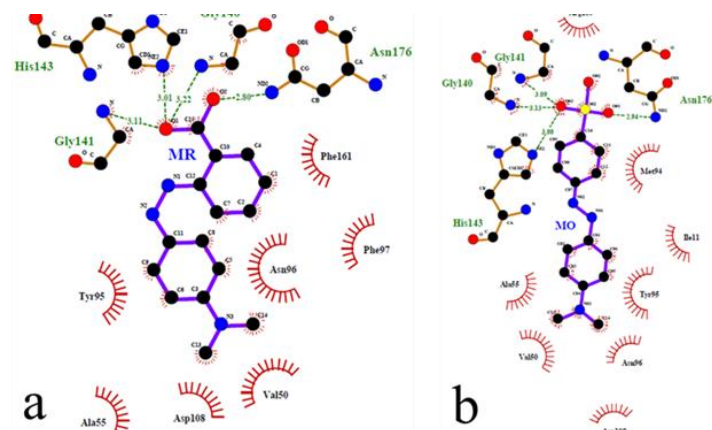


**Fig. 2** SDS-PAGE analysis of SxAZR

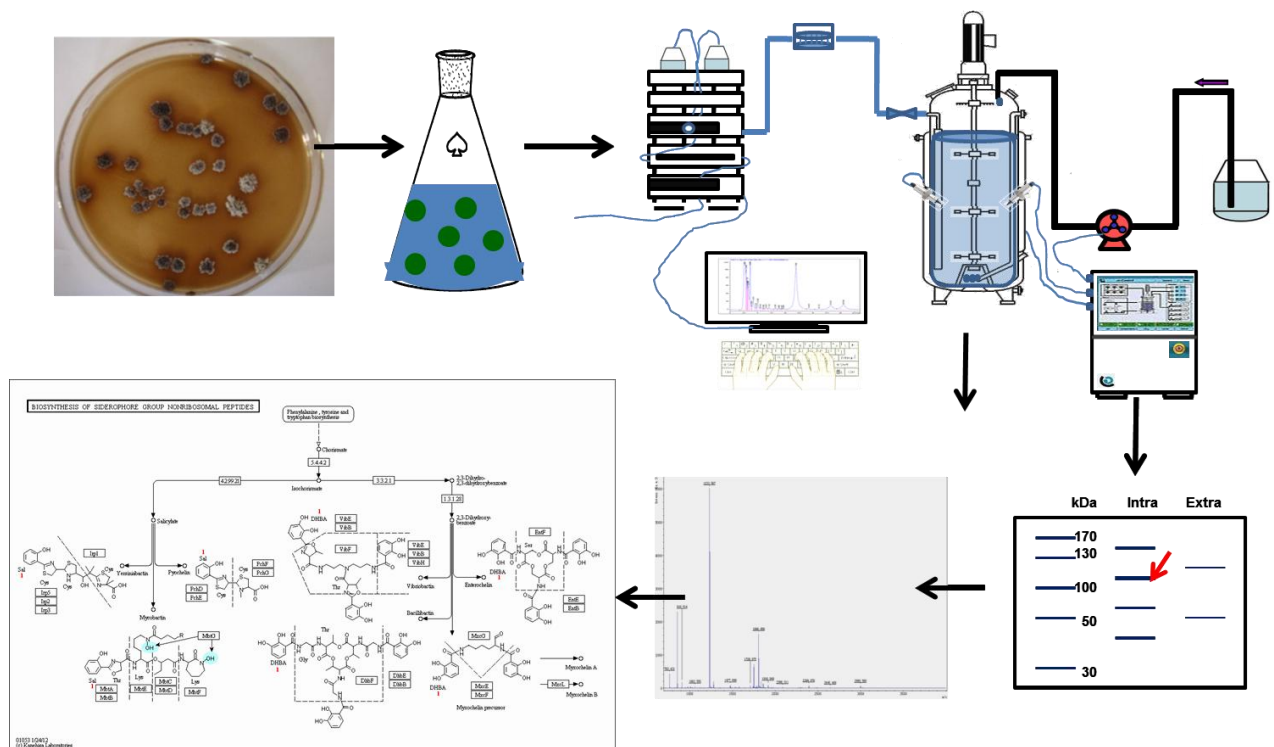
From gene cloning to over-expression



Adapted to 3D molecular simulation



➤ Metabolic engineering in fermentation of valuable bioproducts



Flow chart from flask culture to scale fermentation and followed by metabolic analysis.