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Biochemical characterisation of a PL24 ulvan lyase from seaweed-associated Vibrio sp. FNV38

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Supplementary Data

S1. Protein Sequence

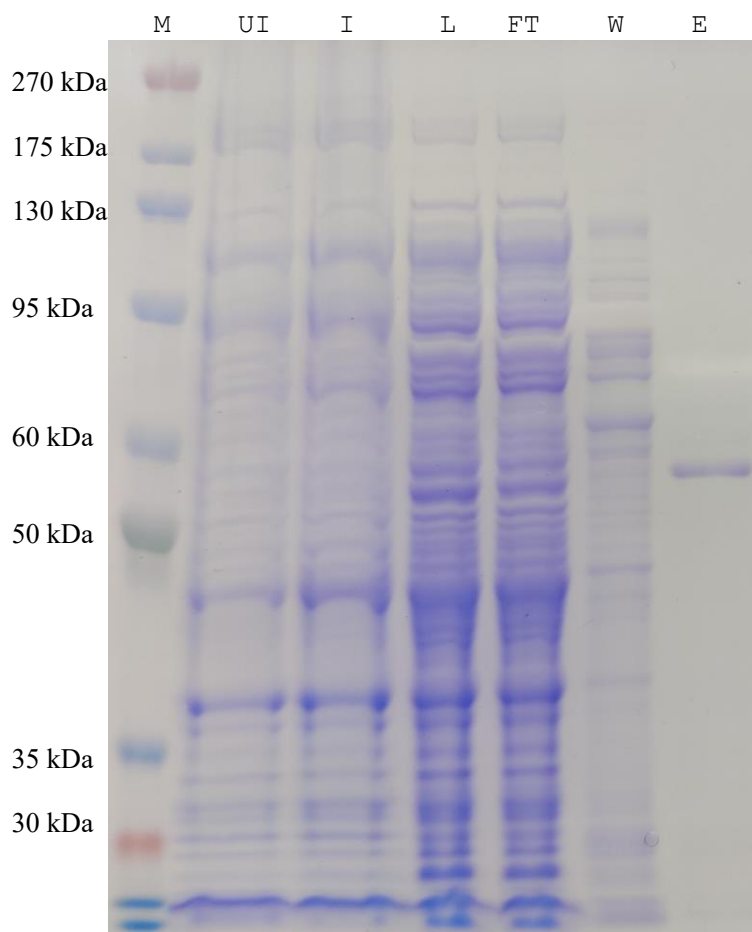
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DI

*Residues highlighted in red code for the signal peptide

S2. Codon Optimized Gene Sequence

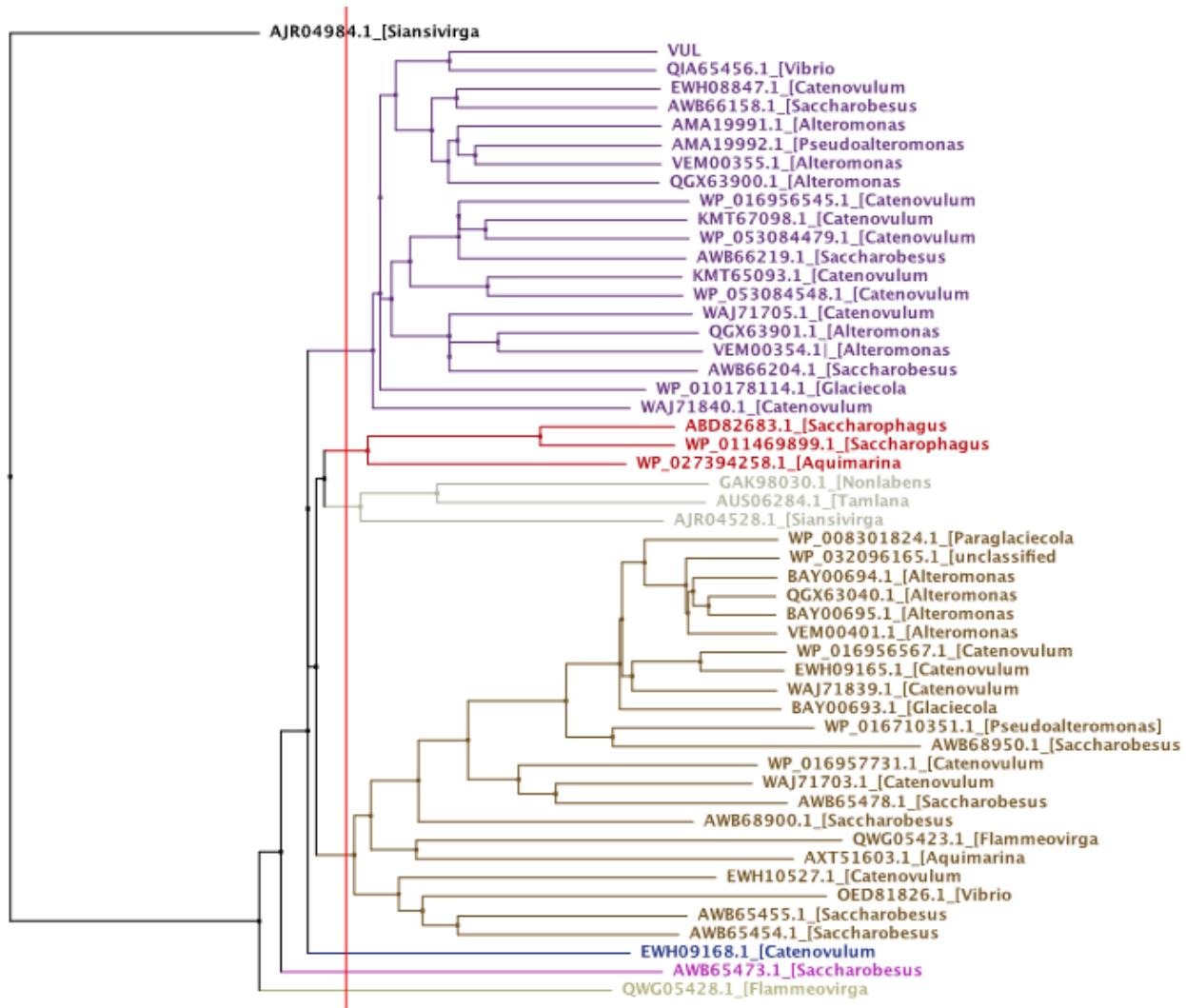
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Supplementary Figure 1. SDS-PAGE of fractions from the purification of recombinant ulvan lyase. Proteins were visualized with Coomassie Brilliant Blue R-250. The theoretical molecular weight of the protein without the signal peptide is 54 kDa Key-M: marker, UI: uninduced, I: induced, L: cell lysate, FT: flow-through, W: wash fractions, E: eluted fraction



Supplementary Figure 2. C-PAGE of ulvan before and after saccharification using PL24 ulvan lyase from *Vibrio* sp. FNV38. Key-A: before saccharification, B: after saccharification.



Supplementary figure 3. Phylogenetic tree derived from the multiple sequence alignment of the Polysaccharide Lyase family 24 were retrieved from the CAZy database (http://www.cazy.org/PL24_all.html) composed of 57 members. The sequences are labelled by the Genebank ID followed by organism.

Supplementary Table 1. Detailed split of CAZy genes in *Vibrio sp.* FNV 38

Family	Number of Genes	Family	Number of Genes
Polysaccharide Lyases		Carbohydrate Binding Modules	
PL 0	1	CBM4	1
PL 6	2	CBM5	2
PL 7	8	CBM9	1
PL15	2	CBM13	1
PL17	4	CBM32	2
PL 24	1	CBM34	1
PL25	1	CBM41	1
Glycosyl Hydrolases		CBM47	1
GH1	6	CBM48	4
GH2	4	CBM50	10
GH3	7	CBM69	1

GH4	1	CBM73	2
GH5	2	Carbohydrate Esterases	
GH9	2	CE0	1
GH10	2	CE4	1
GH13	16	CE8	1
GH16	3	CE9	1
GH18	3	CE11	1
GH20	1	Glycosyl Transferases	
GH23	10	GT1	2
GH25	1	GT2	11
GH28	2	GT4	14
GH36	4	GT5	1
GH38	1	GT9	3
GH39	2	GT19	1
GH43	4	GT25	1
GH50	4	GT28	2
GH73	2	GT30	2
GH77	1	GT35	1
GH78	1	GT51	5
GH82	2	GT56	1
GH88	1	GT58	1
GH92	1	GT83	1
GH94	4	GT90	1
GH102	1	Auxiliary Activities	
GH103	4	AA0	1
GH116	1	AA10	1
GH117	2		
GH127	1		
GH149	1		
GH152	1		