

Figure S1. Example of electrophoretic analysis on agarose gel with Stains All staining performed on culture broth supernatants recovered after 48h of incubation of 21 deep-sea hydrothermal vent strains in Zobell-like medium supplemented with glucose during the screening step. GY785 EPS and HE800 EPS were used as references.

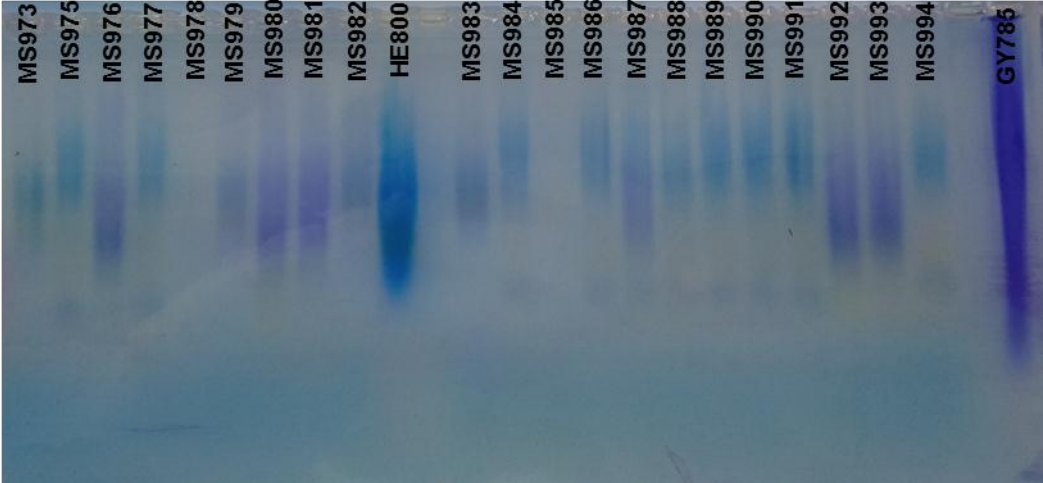


Table S1. Deep-sea hydrothermal vent strains selected for EPS production at laboratory scale.

Strain	Cruise	Cruise year	Cruise site	Sample location	EPS production
BI6	Biolau	1989	Southwestern Pacific Ocean (Lau Basin)	scratched shell of mussel	Yes
BI15	Biolau	1989	Southwestern Pacific Ocean (Lau Basin)	intervalvar water of mussel	Yes
BI20	Biolau	1989	Southwestern Pacific Ocean (Lau Basin)	sampling water at the base of a white smoker	Yes
BI27	Biolau	1989	Southwestern Pacific Ocean (Lau Basin)	hydrothermal fluid above a white smoker	Yes
BI31	Biolau	1989	Southwestern Pacific Ocean (Lau Basin)	sampling water at the way out of a black smoker	Yes
BI54	Biolau	1989	Southwestern Pacific Ocean (Lau Basin)	unknown	Yes
BI77	Biolau	1989	Southwestern Pacific Ocean (Lau Basin)	unknown	Yes
BI93	Biolau	1989	Southwestern Pacific Ocean (Lau Basin)	unknown	Yes
BI112	Biolau	1989	Southwestern Pacific Ocean (Lau Basin)	hydrothermal fluid above a white smoker	Yes
BI121	Biolau	1989	Southwestern Pacific Ocean (Lau Basin)	hydrothermal fluid in titane tube	Low amount
BI134	Biolau	1989	Southwestern Pacific Ocean (Lau Basin)	scratched shell of mussel	Yes
BI145	Biolau	1989	Southwestern Pacific Ocean (Lau Basin)	intervalvar water of mussel	Yes
BI189	Biolau	1989	Southwestern Pacific Ocean (Lau Basin)	crushed foot of Alviniconcha	Yes
BI193	Biolau	1989	Southwestern Pacific Ocean (Lau Basin)	crushed gills of Alviniconcha	Yes
ST265	Starmer	1989	Southwestern Pacific Ocean (North Fiji Basin)	intervalvar water of mussel	Low amount
ST279	Starmer	1989	Southwestern Pacific Ocean (North Fiji Basin)	crushed gills of Trochidae	Low amount
ST285	Starmer	1989	Southwestern Pacific Ocean (North Fiji Basin)	crushed digestive mass of Trochidae	Low amount
ST308	Starmer	1989	Southwestern Pacific Ocean (North Fiji Basin)	intervalvar water of mussel	Yes
ST352	Starmer	1989	Southwestern Pacific Ocean (North Fiji Basin)	crushed gills of Trochidae	Yes
BI370	Biolau	1989	Southwestern Pacific Ocean (Lau Basin)	crushed gills of Alviniconcha	Yes
ST421	Starmer	1989	Southwestern Pacific Ocean (North Fiji Basin)	intervalvar water of mussel	Yes
ST422	Starmer	1989	Southwestern Pacific Ocean (North Fiji Basin)	crushed digestive mass of mussel	Yes
ST427	Starmer	1989	Southwestern Pacific Ocean (North Fiji Basin)	crushed digestive mass of Alviniconcha	Yes
BI724	Biolau	1989	Southwestern Pacific Ocean (Lau Basin)	unknown	Yes
AL749	MMVT	1990	East Pacific Ridge (EPR 11°N, 13°N or 21°N)	unknown	Yes
MA882	Marvel	1993	Mid Atlantic Ridge (Snake Pit or Tag)	unknown	Yes
MA886	Marvel	1993	Mid Atlantic Ridge (Snake Pit or Tag)	shrimp	Low amount
MA894	Marvel	1993	Mid Atlantic Ridge (Snake Pit or Tag)	unknown	Yes
MS911	Microsmoke	1995	Mid Atlantic Ridge (Snake Pit)	colonization module	Yes
MS937	Microsmoke	1995	Mid Atlantic Ridge (Snake Pit)	colonization module	Yes
MS944	Microsmoke	1995	Mid Atlantic Ridge (Snake Pit)	colonization module	Yes
MS950	Microsmoke	1995	Mid Atlantic Ridge (Snake Pit)	colonization module	Yes
MS969	Microsmoke	1995	Mid Atlantic Ridge (Snake Pit)	colonization module	Yes
AT1213	Atos	2001	Mid Atlantic Ridge (Rainbow)	crushed Rimicaris	Yes
AT1217	Atos	2001	Mid Atlantic Ridge (Rainbow)	crushed Rimicaris	Low amount
AT1219	Atos	2001	Mid Atlantic Ridge (Rainbow)	active chimney	Yes
PH1226	Phare	2002	East Pacific Ridge (EPR 13°N)	unknown	Yes
AT1240	Atos	2001	Mid Atlantic Ridge (Rainbow)	crushed Rimicaris	Low amount

Table S2. Recovery yield, weight-average molecular weight (Mw), polydispersity index (Ip) and chemical composition (protein, sulfur and monosaccharide contents) of 31 EPS produced at laboratory scale. GY785 EPS and HE800 EPS were used as references.

Strain	Yield (g/L)	Mw (10 <sup>6</sup> g/mol)	Ip	Protein (wt%)	Sulfur (wt%)	Monosaccharide composition (wt%)								
						Rha	Fuc	Man	Gal	Glc	GlcA	GalA	GlcNAc	GalNAc
GY785	0,55	3,6	1,05	15	3	0,7	0,3	1,8	17,6	22,9	9,5	4,9	0	0
HE800	0,35	1,8	1,5	1,9	0	0	0	0	0	0	17,1	0	26,2	8,4
BI6	0,47	2,6	1,03	3	0	0	0	0	0	0	6,9	18	11,2	4,1
BI15	0,68	2,5	1,05	3	0	0	0	0	0	0	10,4	7,6	11,6	11,2
BI20	0,58	2,3	1,03	6	0	0	0	0	0	0	4,1	18,7	13,3	1,6
BI27	0,57	2,5	1,04	3	0	0	0	0	0	0	10,8	7,8	11,5	12,4
BI31	0,27	3,2	1,2	5	0	0	0	0	0	0	6,1	11,6	8,2	2,9
BI54	0,42	2,5	1,03	5	0	0	0	0	0	0	11,6	8,6	8,3	7,7
BI77	0,32	2,4	1,04	5	0	0	0	0	0	0	7,6	8,2	9	12,6
BI93	0,42	2,4	1,02	6	0	0	0	0	0	0	8,4	7,9	9,6	13,6
BI112	0,34	2,7	1,07	5	0	0	0	0	0	0	2,3	10,9	7,1	0
BI134	0,6	1,4	1,1	4	0	0	0	0	0	0	8,9	6,6	11,4	18,3
BI145	0,49	2,4	1,03	4	0	0	0	0	0	0	7,8	6,1	8,5	14,7
BI189	0,6	2,3	1,04	4	0	0	0	0	0	0	5,6	3,2	6,1	0
BI193	0,84	2,3	1,1	4	0	0	0	0	0	0	8	5,7	11	9,5
ST308	1,03	2,3	1,04	3	0	0	0	0	0	0	0	18,1	8	0
ST352	0,67	3,0	1,05	4	0	0	0	0	0	0	0	17,5	6,5	0
BI370	1,25	2,8	1,03	4	0	0	0	0	0	0	0	19	4,2	0
ST421	0,83	2,5	1,2	12	2	2,3	2,2	0	13,9	21,8	6	1,7	0	0
ST422	0,7	2,6	1,07	1	0	0	0	0	0	0	24,3	0	21,4	16,5
ST427	0,76	2,4	1,02	2	0	0	0	0	0	0	21,9	0	19,4	15,8
BI724	0,58	2,2	1,03	9	0	0	0	3,1	2,3	6,6	5,6	1,8	7,4	1,7
AL749	0,68	3,0	1,01	6	0	0	0	0	2,5	5,8	2,8	0	9,7	6,4
MA882	0,12	5,1	1,05	6	0	0	0	0	0	0	7,1	1,1	6,9	3,2
MA894	0,38	2,8	1,04	6	0	0	0	0	0	0	10,6	8,8	11,1	14,8
MS911	0,3	3,0	1,05	4	0	0	0	0	0	0	3,6	13,6	12,6	3
MS937	0,4	3,1	1,02	4	0	0	0	0	0	0	18,5	3,3	18,3	13,1
MS944	0,45	1,9	1,1	4	0	0	0	0	0	0	3,4	17,2	11,5	4,3
MS950	0,92	3,0	1,03	16	0	0	0	0	5,9	11	6,4	1,8	4,5	1,6
MS969	0,26	2,8	1,24	13	3	11,1	0	0	1,8	15,9	5,6	0	0	0
AT1213	0,77	2,1	1,09	4	0	0	0	0	10,6	2	9,3	5,3	10,3	3,1
AT1219	0,44	3,2	1,16	7	0	0	0	0	12,8	5,4	13	6,1	10,5	17,6
PH1226	0,29	2,2	1,06	5	0	0	0	0	12,8	4,8	11,6	5,8	10,5	14,8