

Supplemental Material for Marine Bacterial Biofilms: Shaping Surface Communities

Table 1. Bacterial Induction of Metamorphosis in Marine Invertebrates

Phylum	Organism	Inducing bacterial strain	Reference
Porifera			
	<i>Coscinoderma matthewsi</i>	Natural Biofilm	(118)
	<i>Rhopaloeides odorabile</i>	Natural Biofilm	(127)
	Slime Sponges	Natural Biofilm	(52, 53)
Cnidaria			
Scyphozoa	<i>Cassiopea andromeda</i>	<i>Vibrio</i> sp.	(24, 42, 43, 71)
Anthozoa	<i>Acropora willisae</i>	<i>Pseudoalteromonas</i> sp. A3	(70)
	<i>Acropora microphthalma</i>	Natural biofilm	(123)
	<i>Acropora millepora</i>	<i>Pseudoalteromonas citrea</i> , <i>Pseudoalteromonas peptidolytica</i> , <i>Pseudoalteromonas</i> sp	(106)**
	<i>Drifa</i> sp.	Natural biofilms,	(100)
	<i>Drifa glomerata</i>	Natural biofilms,	(100)
	<i>Favia fragum</i>	Natural Biofilm	(81)
	<i>Heteroxenia fuscescens</i>	Biofilm on coral skeleton	(40)
	<i>Montipora capitata</i>	Natural biofilm	(117)
	<i>Leptastrea purpurea</i>	Natural Biofilms, Isolates from CCA	(78)
	<i>Pocillopora damicornis</i>	<i>Pseudoalteromonas</i> sp., <i>Pseudoalteromonas luteoviolacea</i> , <i>Thalassotalea euphilliae</i> *	(110)
		Natural Biofilm	(38)
	<i>Porites asteroides</i>	Natural Biofilm	(81)
	<i>Stylaraea punctata</i>	Natural Biofilm	(30)
Hydrozoa	<i>Hydractinia echinata</i>	<i>Pseudoalteromonas espejina</i>	(32, 90)
		Washed bacterial cells	(97)
		<i>Alteromonas epejiana</i>	(61)
	<i>Hydractinia symbiolongicarpus</i>	Natural biofilms, QSSM, <i>Shigella flexneri</i> , <i>Microbacterium liquefaciens</i> , <i>Kocuria erythromyxa</i>	(27)
Bryozoa			

	<i>Bugula neritina</i>	<i>Vibrio ichthyoenteri</i> , <i>Pseudoalteromonas atlantica</i> , <i>Cytophaga sp.</i> , <i>Tenacibaculum mesophilum</i> , <i>Exiguobacterium aurantiacum</i>	(21)	
		Natural film	(17, 67)	
		Biofilmed glass	(66)	
	<i>Bugula simplex</i>	Natural Biofilm	(9)	
	<i>Bugula territa</i>	Natural Biofilm	(9)	
	<i>Flustrellida hispida</i>	Natural Biofilm	(36)	
Annelida				
Polychaeta	<i>Capitella teleta</i>	<i>Delsulfovibrio oceani</i>	(10)	
		Natural Biofilm	(10)	
	<i>Ophelia bicornis</i>	Constructed biofilm	(131)	
	<i>Ficopmoatus enigmaticus</i>	Natural Biofilm	(28)	
	<i>Galeolaria caespitosa</i>	Natural Biofilm	(91, 122)	
	<i>Hydroides dianthus</i>	Natural Biofilm	(91)	
	<i>Hydroides elegans</i>	<i>Pseudoalteromonas luteoviolacea</i> , <i>Cytophaga lytica</i> , <i>Flexibacter sp.</i> ,	Natural Biofilm	(44, 116)
			Natural Biofilm	(33)
			<i>Pseudoalteromonas spongiae</i>	(45)
	<i>Janua brasiliensis</i>	Natural Biofilm	(55)	
		<i>Pseudomonas marina</i>	(55, 56)	
	<i>Pomatoceros lamarkii</i>	Natural Biofilm	(35, 37, 87)	
	<i>Spirorbis tridentatus</i>	Biofilmed stones	(19, 36)	
	<i>Spirorbis borealis</i>	Natural Biofilm	(16, 57)	
<i>Spirorbis spirorbis</i>	Natural Biofilm	(36)		
<i>Spirorbis sp.</i>	Natural Biofilm	(41)		
Mollusca				
Bivalvia	<i>Aulacomya maoriana</i>	<i>Macrocooccus sp.</i> , <i>Bacillus sp.</i> , <i>Pseudoalteromonas sp.</i>	(1)	
	<i>Crassostrea ariakensis</i>	Natural Biofilm	(104)	
	<i>Crassostrea gigas</i>	<i>Shewanella colwellina</i>	(111)	
		<i>Shewanella colwellina</i> , <i>Vibrio cholerae</i> , <i>Escherichia coli</i>	(23, 25)	
		<i>Alteromonas</i>	(125)	
	<i>Crassostrea virginica</i>	Natural Biofilm	(12, 105)	
		<i>Shewanella colwellina</i>	(126)	
		<i>Alteromonas</i>	(125)	
	<i>Crassostrea sp.</i>	Natural Biofilm	(8)	
	<i>Mytilopsis sallei</i>	<i>Vibrio owensii MS-9</i>	(39)	
<i>Mytilus coruscus</i>	Natural biofilms	(119)		
	<i>Shewanella sp.</i> 1 BF	(133)		

		<i>Virgibacillus sp. 1</i> ; <i>Pseudomonas sp. 3</i> ; <i>Pseudoalteromonas sp. 32</i> <i>Bacillus sp. 13</i> .	(13)
		<i>Pseudoalteromonas marina</i>	(77)
		<i>Pseudoalteromonas atlantica</i>	(120)
		<i>Pseudoalteromonas lipolytica</i>	(135)
	<i>Mytilus galloprovincialis</i>	<i>Alteromonas sp.</i> , Natural Biofilm	(5) (88, 89, 132)
	<i>Ostrea edulis</i>	<i>Natural Biofilm</i> <i>Shewanella colwellina</i>	(86) (111)
	<i>Pinctada maxima</i>	Natural Biofilms	(121, 136)
	<i>Pinctada fucata</i>	Natural Biofilms	(134)
	<i>Rangia cuneata</i>	Biofilmed sediment	(101)
	<i>Saccostrea commercialis</i>	Natural Biofilm	(4)
	<i>Teredo parksi</i>	<i>Pseudoalteromonas sp. and</i> <i>Vibrio sp.</i>	(73)
	<i>Perna canaliculus</i>	<i>Macrocooccus sp.</i> , and <i>Bacillus</i> <i>sp.</i>	(29)
	<i>Argopecten purpuratus</i>	Natural Biofilm <i>Halomonas sp.</i>	(31) (62)
Gastropoda	<i>Concholepus concholepus</i>	Natural Biofilm	(85)
	<i>Crepidula onyx</i>	Natural Biofilm	(15)
	<i>Dendropoma cristatum</i>	Natural Biofilm	(59)
	<i>Haliotis discus</i>	Natural Biofilm	(34)
	<i>Haliotis iris</i>	Natural Biofilm	(83, 114)
Arthropoda			
	<i>Amphibalanus/Balanus amphitrite</i>	Natural Biofilm <i>Bacillus pumilus, Citrobacter freundii</i>	(22, 60, 63, 64, 112, 128) (54)
	<i>Balanus cariosus</i>	Natural Biofilm <i>Pseudoalteromonas shioyasakiensis, Vibrio harveyi, Planomicrobium sp.</i>	(74) (93)
	<i>Balanus trigonus</i>	Natural Biofilm	(60, 107)
	<i>Eliminus modestus</i>	<i>Deleya marina</i>	(69)
	<i>Notomegabalanus algicola</i>	Natural Biofilm	(41)
	<i>Semibalanus balanoides</i>	Natural Biofilm	(109)

	<i>Schizopera sp.</i>	Natural biofilms, <i>Rhodovulum sp.</i> , <i>Vibrio proteolyticus</i> , and <i>Flexibacter sp.</i>	(17)	
	<i>Dyspanopeus sayi</i>	Natural Biofilm	(68)	
	<i>Hemigrapsus sanguineus</i>	Natural Biofilm (plus textured surface)	(3, 68, 99)	
	<i>Ucides cordatus</i>	Marine and Estuarine Biofilms	(94)	
	<i>Panopeus herbstii</i>	Natural Biofilm	(84)	
Echinodermata				
Echinoidea	<i>Arbacia punctulata</i>	Bacterial film	(11)	
	<i>Anthocidaris crassispinata</i>	Natural Biofilm	(80)	
	<i>Diadema antillarum</i>	Natural Biofilm	(79, 130)	
	<i>Helicidaris erythrogramma</i>	<i>Pseudoalteromonas luteoviolacea</i>		(47, 72)
		<i>Pseudoalteromonas</i> , <i>Vibrio sp.</i> or <i>Shewanella sp.</i>		(46)
	<i>Holopneustes purpurascens</i>	<i>Photobacterium phosphoreum</i> , <i>Thalassomonas viridans</i>		(102)
	<i>Lytechinus pictus</i>	Bacterial film	(11)	
	<i>Paracentrotus lividus</i>	Natural Biofilm	(18)	
	<i>Pseudocentrotus depressus</i>	Natural Biofilm	(80)	
	<i>Strongylocentrotus droebachiensis</i>	Natural Biofilm	(76)	
	<i>Strongylocentrotus purpuratus</i>	Natural Biofilm	(2)	
<i>Arachnoides placenta</i>	Filmed glass	(14)		
Asteroidea	<i>Ancanthaster planci</i>	Biofilmed CCA	(49, 50)	
	<i>Coscinasterias calamaria</i>	Natural Biofilm	(6)	
Holothuroidea	<i>Apostichopus japonicus</i>	Natural Biofilm	(113)	
Chordata				
Tunicata	<i>Boltenia villosa</i>	Natural Biofilm	(82)	
	<i>Ciona intestinalis</i>	<i>Pseudomonas sp. S9</i>	(103)	
		Natural Biofilm	(129)	

Table 2. Bacterial induction of settlement and development in macroalgae and seagrasses

Phylum / Division	Organism	Inducing bacterial strain	Reference
Chlorophyta (Kingdom Plantae)	<i>Enteromorpha (Ulva)</i>	Natural Biofilm	(20, 26, 51)
		<i>Pseudomonas</i> spp., <i>Alteromonas</i> spp., and <i>Coryneform</i> bacteria	(108)
		<i>Vibrio</i> spp., <i>Shewanella</i> spp., and <i>Pseudoalteromonas</i>	(75)
	<i>Enteromorpha flexuosa</i>	Natural Biofilm	(48)
	<i>Ulva fasciata</i>	<i>Bacillus flexus</i>	(92, 96)
	<i>Ulva lactuca</i>	Natural Biofilm	(7)
	<i>Ulva linza</i>	<i>Pseudomonas</i> sp., <i>Bacillus</i> sp.	(65)
	<i>Ulva mutabilis</i>	<i>Roseobacter</i> sp.	(98)
Phaeophycophyta	<i>Undaria pinnatifida</i>	Natural Biofilm	(7)
Rhodophyta (Kingdom Plantae)	<i>Gracilaria</i> sp.	Natural Biofilm	(115)
	<i>Gracilaria dura</i>	<i>Exiguobacterium homiense</i> , <i>Bacillus pumilus</i> , <i>Bacillus licheniformis</i>	(95)
	<i>Acrochaetium</i> sp.	Epiphytic biofilm	(124)
	<i>Rhizoclonium</i> spp.	Natural biofilm	(58)

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