

2023

# Diversity and bioactive potential of leaf-, and root sediment-associated bacteria from *Zostera marina* in the Yealm Estuary, Southwest England

Capps, E.

Capps, E. (2023) 'Diversity and bioactive potential of leaf-, and root sediment-associated bacteria from *Zostera marina* in the Yealm Estuary, Southwest England', *The Plymouth Student Scientist*, 16(2), pp. 132-156.

<https://pearl.plymouth.ac.uk/handle/10026.1/21843>

---

The Plymouth Student Scientist  
University of Plymouth

---

*All content in PEARL is protected by copyright law. Author manuscripts are made available in accordance with publisher policies. Please cite only the published version using the details provided on the item record or document. In the absence of an open licence (e.g. Creative Commons), permissions for further reuse of content should be sought from the publisher or author.*

# Supplementary Material

**Supplementary Table 1 (ST1)** Morphology sheet for isolates from spread plates. Sources colour coded, Seagrass A (SGA) in blue, Seagrass B (SGB) in orange, Root sediment (RSD) in yellow, and Root sediment 2 (RSD(2)) in green. Media colour coded, Marine agar with no nalidixic acid (MA(-NA)) in green, Reasoner's 2A agar (R2A) in blue, Marine agar with nalidixic acid (MA(+NA)) in purple, and Actinomycete agar (ACT) in pink.

Supplementary Table 1 (ST1)

Sample ID	Sample source	Media	Dilution	# of CFUs	Morphology	Shape/form	Size	Colour
EC-SGA1	SGA	MA(-NA)	10 <sup>-5</sup>	2	Slightly raised, entire, mucoid	Round	Moderate	Pale peach, deeper in centre
EC-SGA2	SGA	MA(-NA)	10 <sup>-5</sup>	1	Flat, smooth, entire	Round	Moderate	Pale yellow, deeper in centre
EC-SGA3	SGA	MA(-NA)	10 <sup>-5</sup>	2	Flat, smooth, irregular margin	Irregular	Moderate	V. pale peach/cream
EC-SGA4	SGA	MA(-NA)	10 <sup>-5</sup>	1	Flat, smooth	Irregular	Moderate	Irregular pale peach/cream, deeper in centre
EC-SGA5	SGA	MA(-NA)	10 <sup>-5</sup>	2	Flat, smooth, entire	Round	Moderate/small	Pale peach
EC-SGA6	SGA	MA(-NA)	10 <sup>-5</sup>	2	Flat, smooth, entire	Round	Moderate	Mod. Peach
EC-SGA7	SGA	MA(-NA)	10 <sup>-5</sup>	1	Flat, smooth, entire	Round	Moderate	Pale peach/cream, thinner in centre
EC-SGA8	SGA	MA(-NA)	10 <sup>-5</sup>	1	Flat, smooth, entire	Round	Small	Pale yellow, deeper in centre
EC-SGA9	SGA	MA(-NA)	10 <sup>-5</sup>	1	Flat, smooth, entire	Round	Moderate/small	Pale yellow translucent outer, cream inner
EC-SGA10	SGA	MA(-NA)	10 <sup>-5</sup>	1	Slightly raised, smooth, entire	Round	Moderate/small	Pale peach, deeper in centre
EC-SGA11	SGA	MA(-NA)	10 <sup>-5</sup>	2	Flat, smooth, entire	Round	Moderate	Pale peach/cream
EC-SGA12	SGA	MA(-NA)	10 <sup>-5</sup>	1	Flat, smooth, entire	Round	Moderate	Peach with pale ring inside
EC-SGA13	SGA	MA(-NA)	10 <sup>-5</sup>	1	Mostly flat, some areas raised (darker), smooth, entire	Irregular	Moderate	Pale peach, darker peach patch
EC-SGA14	SGA	MA(-NA)	10 <sup>-4</sup>	1	Flat, smooth, entire	Round	Small	Pale peach (small, paler area on side)
EC-SGA15	SGA	MA(-NA)	10 <sup>-4</sup>	6	Flat, smooth, entire	Round	Small	Pale yellow/peach, darker than surroundings
EC-SGA16	SGA	MA(-NA)	10 <sup>-4</sup>	1	Flat, smooth, entire	Round	Small	Pale peach
EC-SGA17	SGA	MA(-NA)	10 <sup>-4</sup>	NA	Spread out, covers most of plate, flat	Irregular	V. large	Pale yellow/peach
EC-SGA18	SGA	MA(-NA)	10 <sup>-4</sup>	NA	Spread over much of plate	Irregular	V. large	Pale yellow/peach
EC-SGB19	SGB	MA(-NA)	10 <sup>-5</sup>	1	Flat, smooth, entire	Round	Small	Pale peach/cream
EC-SGB20	SGB	MA(-NA)	10 <sup>-5</sup>	2	Flat, smooth, entire	Round	Moderate	Pale cream
EC-SGB21	SGB	MA(-NA)	10 <sup>-5</sup>	1	Flat, smooth, entire	Round	Small	Pale yellow
EC-SGB22	SGB	MA(-NA)	10 <sup>-5</sup>	1	Slight convex, smooth, entire	Irregular	Moderate	Pale peach/cream, cream centre
EC-SGB23	SGB	MA(-NA)	10 <sup>-5</sup>	3	Flat, smooth, entire	Round	Moderate	Pale cream
EC-SGB24	SGB	MA(-NA)	10 <sup>-5</sup>	1	Flat, smooth	Irregular	Moderate	Pale, sploody cream
EC-SGB25	SGB	MA(-NA)	10 <sup>-5</sup>	1	Very flat, smooth	Round	Small	Pale yellow, translucent
EC-SGB26	SGB	MA(-NA)	10 <sup>-5</sup>	2	Slight convex, smooth, entire	Round	Small	Pale yellow
EC-SGB27	SGB	MA(-NA)	10 <sup>-5</sup>	1	Flat, smooth, entire	Round	Small	Pale peach/cream
EC-SGB28	SGB	MA(-NA)	10 <sup>-4</sup>	1	Smooth, flat	Round	Small	Pale yellow
EC-SGB29	SGB	MA(-NA)	10 <sup>-4</sup>	2	Flat, smooth but slightly more matte	Irregular	Small	Pale cream, opaque
EC-SGB30	SGB	MA(-NA)	10 <sup>-4</sup>	10+	Flat, smooth, entire	Round	Moderate/small	Very pale cream, translucent
EC-SGB31	SGB	MA(-NA)	10 <sup>-4</sup>	10+	Flat, smooth, entire	Round	Moderate/small	Pale yellow
EC-SGB32	SGB	MA(-NA)	10 <sup>-1</sup>	2	Flat, smooth, entire	Round	Small	Very pale cream
EC-SGB33	SGB	MA(-NA)	10 <sup>-1</sup>	7	Smooth, convex, many joined up	Irregular	Small	Pale peach, deeper in centre
EC-SGB34	SGB	MA(-NA)	10 <sup>-1</sup>	6	Very flat, smooth, growing near another, more opaque growth adjacent	Round	Small	Pale yellow, translucent
EC-RSD35	RSD	MA(-NA)	10 <sup>-1</sup>	2	Flat, smooth, appearance more matte	Round	Small	Peach, opaque
EC-RSD36	RSD	MA(-NA)	10 <sup>-1</sup>	4	Flat, smooth	Round	Small	Mid-dull brown, translucent
EC-RSD37	RSD	MA(-NA)	10 <sup>-1</sup>	NA	Slightly raised, smooth, entire	Round	Small	Pale cream, opaque, uniform
EC-RSD38	RSD	MA(-NA)	10 <sup>-1</sup>	2	Convex, smooth	Irregular	Small	Pale peach, deeper in centre
EC-SGA39	SGA	R2A	10 <sup>-4</sup>	1	Flat, smooth, almost grainy appearance	Round	Moderate/small	Pale cream, deeper in centre. Outer more translucent
EC-SGA40	SGA	R2A	10 <sup>-4</sup>	2	Flat, smooth, entire	Round	Small	Cream
EC-SGA41	SGA	R2A	10 <sup>-4</sup>	1	Flat, smooth, undulate edges	Irregular	Moderate/small	Pale cream
EC-SGA42	SGA	R2A	10 <sup>-4</sup>	1	Flat, smooth, gel-like	Round	Moderate/small	Pale cream/yellow
EC-SGA43	SGA	R2A	10 <sup>-3</sup>	1	Flat, smooth, entire	Round	Moderate/small	Yellow
EC-SGA44	SGA	R2A	10 <sup>-3</sup>	2	Flat, diffuse, darker centre	Irregular	Moderate/large	Cream
EC-SGA45	SGA	R2A	10 <sup>-3</sup>	2	Flat, smooth, entire	Round	Small	Cream/yellow
EC-SGA46	SGA	R2A	10 <sup>-3</sup>	4	Slightly raised, smooth, entire	Round	Small	Cream
EC-SGA47	SGA	R2A	10 <sup>-2</sup>	2	Flat, smooth, entire	Round	Small	Yellow
EC-SGA48	SGA	R2A	10 <sup>-2</sup>	5	Diffuse, centre smooth, outer textured	Round	Small	Cream
EC-SGA49	SGA	R2A	10 <sup>-2</sup>	1	Similar to 47, flat, smooth, colour less intense	Round	Small	Yellow
EC-SGA50	SGA	R2A	10 <sup>-2</sup>	10+	Flat but textured, looks like a jellyfish	Round	Small	Cream, deeper in centre
EC-SGA51	SGA	R2A	10 <sup>-1</sup>	1	Flat, smooth, appearance more matte, edges irregular within round shape	Round	Small	Cream, translucent
EC-SGA52	SGA	R2A	10 <sup>-1</sup>	2	Flat, smooth	Round	Small	Orange
EC-SGA53	SGA	R2A	10 <sup>-1</sup>	1	Smooth, egg yolk appearance	Round	Small	White, slightly translucent
EC-SGA54	SGA	R2A	10 <sup>-1</sup>	1	Similar to 53 but smaller, colour more uniform	Round	Small	White
EC-SGB55	SGB	R2A	10 <sup>-5</sup>	2	Flat, smooth, irregular margin	Irregular	Moderate	Cream
EC-SGB56	SGB	R2A	10 <sup>-4</sup>	2	Flat, smooth	Irregular	Moderate	Cream

ST1 continued

Sample ID	Sample source	Media	Dilution	# of CFUs	Morphology	Shape/form	Size	Colour
ECSGB57	SGB	R2A	10 <sup>-3</sup>	1	Flat, smooth, irregular margin	Irregular	Small	Cream, translucent
ECSGB58	SGB	R2A	10 <sup>-3</sup>	5	Flat, smooth, others present and spread widely	Round	Small	Pale cream, translucent
ECSGB59	SGB	R2A	10 <sup>-3</sup>	2	Flat, smooth, entire, even distribution of colour	Round	Small	Cream
ECSGB60	SGB	R2A	10 <sup>-1</sup>	1	Flat, smooth, irregular margin	Irregular	Small	Pink, translucent with darker streaks
ECSGB61	SGB	R2A	10 <sup>-1</sup>	1	Flat, smooth, growth close to others	Irregular	Small	Cream, slight pale pink tint
ECRSD62	RSD	R2A	10 <sup>-1</sup>	1	Flat, smooth, irregular margin	Irregular	Small	Orange
ECRSD63	RSD	R2A	10 <sup>-1</sup>	1	Matte outer, smoother centre, irregular margin like a cauliflower	Irregular	Moderate	Cream
ECRSD64	RSD	R2A	10 <sup>-1</sup>	1	Flat, regular margin, matte, smooth appearance	Round	Small	Pale cream/yellow, opaque
ECRSD65	RSD	R2A	10 <sup>-1</sup>	1	Flat, smooth, egg yolk appearance	Round	Small	Cream, opaque
ECSGA66	SGA	MA(+NA)	10 <sup>-2</sup>	1	Flat, smooth, almost grainy appearance	Round	Small	Yellow, deeper in centre
ECSGA67	SGA	MA(+NA)	10 <sup>-2</sup>	1	Flat, smooth, curly, undulate margin	Irregular	Small	Cream, translucent centre
ECSGA68	SGA	MA(+NA)	10 <sup>-2</sup>	1	Flat, smooth, entire	Round	Moderate	Cream, uniform
ECSGA69	SGA	MA(+NA)	10 <sup>-1</sup>	1	Matte, filamentous growth. Outer is smoother very irregular margin	Irregular	Small	Cream
ECSGA70	SGA	MA(+NA)	10 <sup>-1</sup>	1	Smooth, translucent and scalloped margin	Irregular	Large	Pale cream, translucent
ECSGA71	SGA	MA(+NA)	10 <sup>-1</sup>	2	Smooth, plaque-like appearance, wide-spread. Looks like coral	Irregular	Large	Cream, uniform colour
ECSGB72	SGB	MA(+NA)	10 <sup>-1</sup>	1	Flat, irregular margin, dry but smooth appearance	Irregular	Moderate/large	Cream/yellow
ECSGB73	SGB	MA(+NA)	10 <sup>-1</sup>	2	Flat, Matte, grainy appearance	Round	Small	Cream
ECSGA74	SGA	ACT	10 <sup>-4</sup>	1	Flat, smooth, slight irregularity at margin	Irregular	Small	Cream/white
ECSGA75	SGA	ACT	10 <sup>-1</sup>	5	Flat, dry, regular margin	Round	Small	Orange
ECSGA76	SGA	ACT	10 <sup>-1</sup>	4 groups	Slightly raised, smooth, punctiform, appearance of sporulation	Round	Small, punctiform	Cream
ECSGA77	SGA	ACT	10 <sup>-1</sup>	1	Flat, smooth, frilly margin	Irregular	Small	Translucent, barely visible
ECSGA78	SGA	ACT	10 <sup>-1</sup>	1	Flat, mucoid, similar to 77. Could be multiple joined. Irregular margin, round raised centre, egg yolk	Irregular	Small	Very pale cream, translucent
ECSGA79	SGA	ACT	10 <sup>-1</sup>	1	Flat, smooth, similar to 78	Round	Small	Pale cream, translucent
ECSGB80	SGB	ACT	10 <sup>-1</sup>	1	Raised, almost umbonate, fairly dry. Egg yolk colouring	Round	Small	Cream
ECRSD(2)81	RSD(2)	MA(-NA)	10 <sup>-3</sup>	1	Flat outer with raised round inner (egg yolk appearance), smooth	Round	Small	Translucent outer, darker, more opaque pale yellow centre
ECRSD(2)82	RSD(2)	MA(+NA)	10 <sup>-3</sup>	1	Flat, smooth, regular margin	Round	Small	Yellow
ECSGA83	SGA	MA(+NA)	10 <sup>-5</sup>	2 groups	Punctiform, smooth, round, 2 groups	Round	Punctiform	Cream
ECSGA84	SGA	MA(-NA)	10 <sup>-5</sup>	5	Punctiform, smooth/mucoid, round	Round	Small	Cream, translucent
ECRSD(2)85	RSD(2)	MA(-NA)	10 <sup>-4</sup>	2	Growing alongside 85. Flat, smooth	Round	Small	Pale yellow, translucent
ECRSD(2)86	RSD(2)	MA(-NA)	10 <sup>-4</sup>	3	Raised, mucoid, regular margin	Round	Small	Pale peach
ECRSD(2)87	RSD(2)	MA(-NA)	10 <sup>-4</sup>	4	Flat, mucoid, regular margin	Round	Small	Very pale pink
ECRSD(2)88	RSD(2)	MA(-NA)	10 <sup>-4</sup>	1	Flat outer, raised centre (almost umbonate), smooth	Round	Moderate/small	Peach/yellow, translucent. Deeper in centre
ECRSD(2)89	RSD(2)	MA(-NA)	10 <sup>-3</sup>	1	Flat, smooth/mucoid, regular margin	Round	Small	Orange, translucent
ECRSD(2)90	RSD(2)	MA(-NA)	10 <sup>-3</sup>	1	Flat, smooth/mucoid, regular margin	Round	Small	Orange
ECRSD(2)91	RSD(2)	MA(-NA)	10 <sup>-3</sup>	2	Flat outer, raised centre (almost umbonate), smooth but drier outer. Egg yolk	Round	Small	Peach/cream. Translucent outer, more opaque middle
ECRSD(2)92	RSD(2)	MA(-NA)	10 <sup>-3</sup>	1	Flat, smooth, regular margin	Round	Small	Orange, translucent
ECRSD(2)93	RSD(2)	MA(-NA)	10 <sup>-4</sup>	2	Slightly raised, mucoid, regular margin	Round	Small	Peach
ECRSD(2)94	RSD(2)	MA(-NA)	10 <sup>-4</sup>	1	Small, flat, mucoid, regular margin	Round	Small	Yellow, translucent
ECRSD(2)95	RSD(2)	MA(-NA)	10 <sup>-3</sup>	1	Flat, mucoid, central ring, regular margin	Round	Small	Translucent outer, darker, more opaque pale centre
ECRSD(2)83	RSD(2)	MA(-NA)	10 <sup>-3</sup>	1	Flat outer with raised round inner (egg yolk appearance), smooth	Round	Small	Translucent outer, darker, more opaque pale yellow centre
ECSGA97	SGA	R2A	10 <sup>-3</sup>	1	Flat, smooth, small in size	Round	Small	Orange
ECSGA98	SGA	R2A	10 <sup>-3</sup>	4	Flat, smooth, has 2 rings of different colours	Round	Small	Cream, opaque centre, translucent outer
ECSGA99	SGA	R2A	10 <sup>-3</sup>	5	Flat, smooth, regular margin	Round	Small	Cream, translucent
ECSGA100	SGA	R2A	10 <sup>-3</sup>	6	Small (almost punctiform), smooth	Round	Small	Cream
ECSGA101	SGA	R2A	10 <sup>-3</sup>	2	Flat, mucoid, has outer layer (thinner). Irregular margin	Round	Small	Cream
ECSGA102	SGA	R2A	10 <sup>-3</sup>	2	Flat, mucoid, irregular margin	Round	Small	Cream
ECSGA103	SGA	R2A	10 <sup>-3</sup>	1	Flat, mucoid outer layer, similar to 101. Irregular margin	Round	Small	Cream, translucent outer
ECSGA104	SGA	R2A	10 <sup>-3</sup>	NA	Flat, smooth, regular margin	Round	Small	Translucent, colourless
ECSGB105	SGB	R2A	10 <sup>-4</sup>	1	Flat, smooth, irregular margin	Round	Small	Cream
ECRSD106	RSD	R2A	10 <sup>-1</sup>	1	Flat, matte, irregular. Growth of others over the top	Irregular	Small	White
ECRSD(2)107	RSD(2)	R2A	10 <sup>-3</sup>	Many	Smooth/mucoid, spread/punctiform, extending at edge of plate	Irregular	Small, punctiform	Cream, translucent
ECRSD(2)108	RSD(2)	R2A	10 <sup>-3</sup>	1	Flat, smooth, entire	Round	Small	Cream
ECRSD(2)109	RSD(2)	R2A	10 <sup>-2</sup>	Many	Flat, smooth, small in size	Round	Small	Cream
ECRSD(2)110	RSD(2)	R2A	10 <sup>-2</sup>	3	Flat, smooth, entire	Round	Small	Cream, translucent

ST1 continued

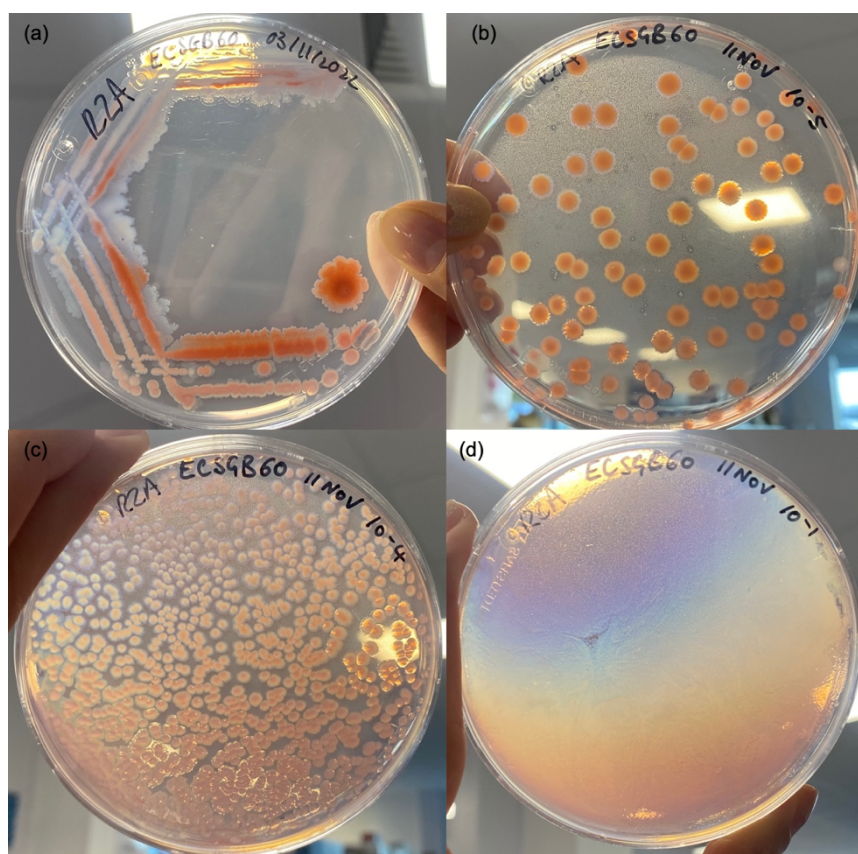
Sample ID	Sample source	Media	Dilution	# of CFUs	Morphology	Shapeform	Size	Colour
ECRSD(2)111	RSD(2)	R2A	10 <sup>-2</sup>	2	Flat, smooth, entire	Round	Small	Yellow
ECRSD(2)112	RSD(2)	R2A	10 <sup>-2</sup>	1	Flat, smooth, irregular margin. Bacteria or metabolite released?	Irregular	Moderate	Yellow, fluorescent, translucent
ECRSD(2)113	RSD(2)	R2A	10 <sup>-2</sup>	Many	Flat, smooth, small in size. Similar to 109	Round	Small, punctiform	Cream, translucent
ECRSD(2)114	RSD(2)	R2A	10 <sup>-1</sup>	1	Slightly raised, matte, entire	Round	Small	Cream
ECRSD(2)115	RSD(2)	R2A	10 <sup>-1</sup>	1	Slightly raised, matte, entire	Round	Small	White
ECRSD(2)116	RSD(2)	R2A	10 <sup>-1</sup>	1	Flat, smooth, entire, egg yolk appearance with middle slightly raised	Round	Small	White centre, outer is translucent and colourless
ECRSD(2)117	RSD(2)	R2A	10 <sup>-1</sup>	1	Flat, smooth, entire, egg yolk appearance. Plate with lots of colonies close/overlapping	Round	Small	Cream centre, translucent, colourless outer
ECSGA118	SGA	ACT	10 <sup>-4</sup>	1	Umbonate, raised like a volcano (tall growth). Very dry, irregular margin	Round	Small	Orange at base on plate, dark brown growth upwards
ECSGA119	SGA	ACT	10 <sup>-3</sup>	1	Flat, dry. Very hard to pick from, had to pick off to streak	Round	Small	Orange
ECSGA120	SGA	ACT	10 <sup>-1</sup>	1	Very similar to 118. Volcano-like appearance, dry	Round	Small	Orange at base on plate, dark brown growth upwards
ECSGA121	SGA	ACT	10 <sup>-1</sup>	Many	Punctiform, was cream and smooth, colour now brown at edge. Individual areas of punctiform joined	Round	Small, punctiform	Cream in places, brown edge
ECSGA122	SGA	ACT	10 <sup>-1</sup>	6 groups	Slightly raised, smooth, irregular margin	Irregular	Moderate/small	Cream, opaque
ECSGA123	SGA	ACT	10 <sup>-1</sup>	1	Raised, dry, entire	Round	Very small	Orange, bright
ECSGA124	SGA	ACT	10 <sup>-1</sup>	1	Raised/convex, dry. Very hard to pick up, had to puncture agar for streak	Round	Small	Beige/brown
ECSGA125	SGA	ACT	10 <sup>-1</sup>	2	Slightly raised, darker centre, orange outer	Round	Small	Brown/orange
ECSGA126	SGA	ACT	10 <sup>-1</sup>	1	Similar to 122 but raised, irregular margin	Round	Small	Cream, opaque
ECSGA127	SGA	ACT	10 <sup>-1</sup>	1	Similar to 79, appears to be almost inhibited by 75	Irregular	Moderate/small	Cream
ECSGB128	SGB	ACT	10 <sup>-1</sup>	1	Flat, smooth, entire	Round	Small	Pale cream, yellow translucent
ECRSD129	RSD	ACT	10 <sup>-1</sup>	2	Flat, filamentous growth, matte appearance	Irregular	Large	Cream/white
ECRSD130	RSD	ACT	10 <sup>-1</sup>	1	Flat, filamentous growth, more matte at margins and centre is smooth	Irregular	Large	Cream/white
ECRSD131	RSD	ACT	10 <sup>-1</sup>	1	Similar to 138. Matte appearance, slightly raised, irregular shape and surface texture	Irregular	Moderate/small	Cream/white
ECRSD132	RSD	ACT	10 <sup>-1</sup>	2	Flat, round, matte, dry. Very close to other colonies	Round	Small	Brown/orange
ECRSD133	RSD	ACT	10 <sup>-1</sup>	1	Appears to be inhibited by 132. Filamentous, matte, flat	Irregular	Large	Cream
ECRSD134	RSD	ACT	10 <sup>-1</sup>	1	Flat, irregular clusters joined by filamentous lawn-like growth. Mid = smooth, outer = matte	Irregular	Moderate	Cream
ECRSD135	RSD	ACT	10 <sup>-1</sup>	1	Flat, dry, regular margin. May be inhibiting 129	Round	Very small	Orange
ECRSD136	RSD	ACT	10 <sup>-1</sup>	1	Flat, matte, irregular. Filamentous margin	Irregular	Small	Cream
ECRSD137	RSD	ACT	10 <sup>-1</sup>	1	Mix of 134 and 136. Flat, matte, irregular shape	Irregular	Moderate/small	Cream
ECRSD(2)138	RSD(2)	MA(+NA)	10 <sup>-3</sup>	1	Same as 82. Flat, smooth, regular margin	Round	Small	Yellow
ECRSD(2)139	RSD(2)	MA(+NA)	10 <sup>-2</sup>	1	Large round growth with "tentacle" appearance at margin and filamentous. Very uneven texture, gloopy bits	Irregular	Large	Gloopy/translucent outer (mucoid), smooth white centre. WHITE PARTS
ECRSD(2)140	RSD(2)	MA(+NA)	10 <sup>-2</sup>	2	Slightly raise, smooth, translucent. Near edge of plate	Irregular	Small	Translucent, colourless
ECRSD(2)141	RSD(2)	MA(+NA)	10 <sup>-2</sup>	1	Very raised, gloopy/mucoid margin of 139	Irregular	Large	Gloopy translucent outer of 139
ECRSD(2)142	RSD(2)	MA(+NA)	10 <sup>-2</sup>	1	Flat, smooth, regular margin	Round	Small	Outer ring = cream, inner circle = darker. Both opaque
ECRSD(2)143	RSD(2)	MA(+NA)	10 <sup>-2</sup>	1	Slightly convex, smooth, regular margin	Round	Small	Pale peach
ECRSD(2)144	RSD(2)	MA(+NA)	10 <sup>-2</sup>	1	Flat, matte, long filamentous growth around edge of plate	Irregular	Moderate	White centre, cream projections
ECRSD(2)145	RSD(2)	MA(+NA)	10 <sup>-2</sup>	1	Similar to tentacle projections of 139 but at edge of plate. Mucoid edges, smooth, white mid. Took from gloopy, translucent outer	Irregular	Moderate	White centre, outer is translucent and colourless
ECRSD(2)146	RSD(2)	ACT	10 <sup>-1</sup>	Many	Flat, smooth, in clusters	Round	Small, punctiform	White
ECRSD(2)147	RSD(2)	ACT	10 <sup>-1</sup>	1	Flat, matte, irregular. Filamentous margin	Irregular	Moderate/small	White
ECRSD(2)148	RSD(2)	ACT	10 <sup>-1</sup>	1	Filamentous extensions from margin of another growth, flat, matte	Irregular	Small	White
ECRSD(2)149	RSD(2)	ACT	10 <sup>-1</sup>	2	Overgrown, irregular shape, smooth but uneven texture. Plate overgrown so hard to see	Irregular	Large	Pale cream/yellow
ECRSD(2)150	RSD(2)	ACT	10 <sup>-2</sup>	2	Flat, grainy growth but smooth. Looks like extension of main growth covering much of plate	Irregular	Moderate/small	White edge, dull mid
ECRSD(2)151	RSD(2)	ACT	10 <sup>-2</sup>	NA	Covers majority of plate, flat, matte, irregular shape	Irregular	Large	Dull creamy yellow
ECRSD(2)152	RSD(2)	ACT	10 <sup>-2</sup>	1	Filamentous extensions behind 163 (margin of 151). Flat, matte	Irregular	Small	Translucent
ECRSD(2)153	RSD(2)	ACT	10 <sup>-2</sup>	1	Irregular, undulate margin like coral (maybe of 151). Smooth and whiter and more opaque than main growth of 151	Irregular	Small	White
ECRSD(2)154	RSD(2)	ACT	10 <sup>-2</sup>	Many (not discreet)	Many within 151 main growth. Flat, irregular sharp margin. Bright and opaque compared with 151. Rhizoid-like projections	Irregular	Small	White
ECRSD(2)155	RSD(2)	ACT	10 <sup>-5</sup>	1	Flat, smooth, irregular growth, coral-like appearance	Irregular	Large	White
ECRSD(2)156	RSD(2)	ACT	10 <sup>-5</sup>	Many	Filamentous extensions of 155? Flat, matte	Irregular	Large	White centre, outer is translucent and colourless
ECRSD(2)157	RSD(2)	MA(+NA)	10 <sup>-1</sup>	2	Flat, smooth, roundish but irregular margin. Growth on half of large growth (158)	Irregular	Small	Beige
ECRSD(2)158	RSD(2)	MA(+NA)	10 <sup>-1</sup>	1	Large growth (around 1/2 of plate). Flat, smooth, undulate edging	Irregular	Large	Beige
ECRSD(2)159	RSD(2)	MA(+NA)	10 <sup>-1</sup>	4	Slightly raised, smooth, even margin (inside 158)	Round	Small	Cream
ECRSD(2)160	RSD(2)	MA(+NA)	10 <sup>-1</sup>	1	Flat, smooth, large growth. Transparent areas in mid and opaque edge. Punctiform within	Irregular	Large	Pale white and some translucent areas
ECRSD(2)161	RSD(2)	MA(+NA)	10 <sup>-1</sup>	1	Flat, even margin, inside 160	Round	Small	Translucent, colourless
ECRSD(2)162	RSD(2)	MA(+NA)	10 <sup>-1</sup>	1	Flat very smooth, egg yolk appearance in middle. Inside 160	Round	Small	Creamy white, darker centre. More opaque outer ring

ST1 continued

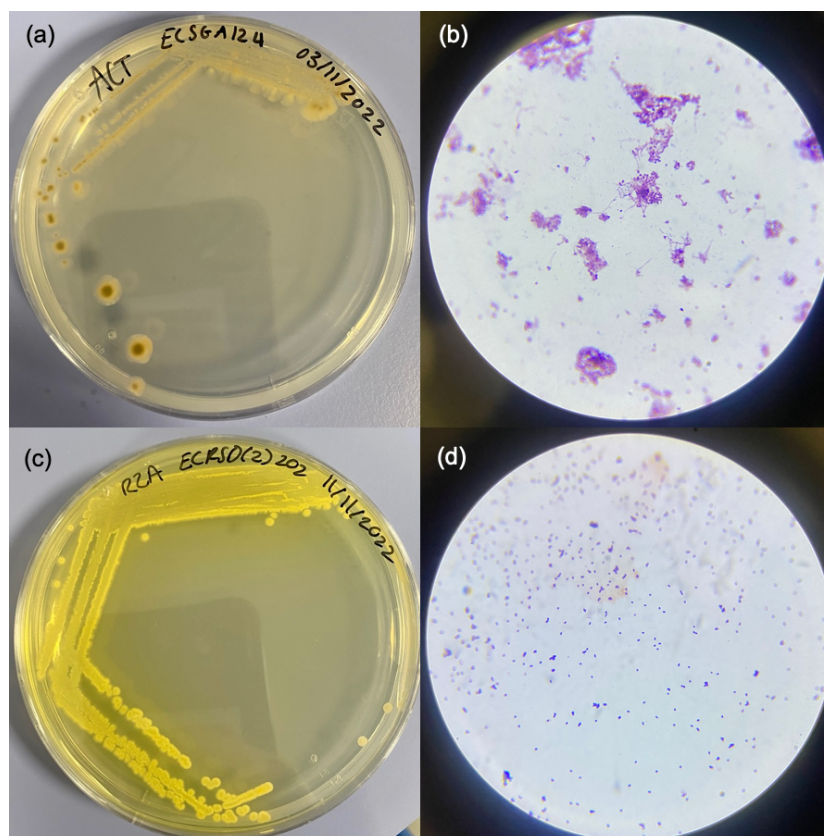
Sample ID	Sample source	Media	Dilution	# of CFUs	Morphology	Shape/form	Size	Colour
ECRSD163	RSD	MA(+NA)	10 <sup>-5</sup>	1	Slightly raised, even margin. Smooth, matte appearance. Very hard to pick up/puncture!	Round	Small	Orange
ECRSD164	RSD	MA(+NA)	10 <sup>-4</sup>	Around 30	Flat, smooth, even margin	Round	Small	Pale yellow
ECRSD165	RSD	MA(+NA)	10 <sup>-1</sup>	1	Flat, smooth, egg yolk appearance	Round	Small	Translucent outer, more opaque centre
ECRSD166	RSD	MA(+NA)	10 <sup>-1</sup>	1	Flat, smooth, irregular colour and margin	Irregular	Small	Centre translucent white, outer = opaque white, translucent projections
ECRSD167	RSD	MA(+NA)	10 <sup>-1</sup>	5	Flat, matte, irregular margin. Sharp projections	Irregular	Small, punctiform	White, translucent
ECRSD168	RSD	MA(+NA)	10 <sup>-1</sup>	1	Flat, fairly matte, margin entire. Opaque ring and centre and translucent mid	Round	Small	White opaque outer and centre, translucent mid
ECRSD169	RSD	MA(+NA)	10 <sup>-1</sup>	1	Irregular growth upwards. Irregular margin. Circle and 2 rings (mid and outer). Opaque mid ring = raised.	Round	Small	White. Translucent areas
ECRSD170	RSD	MA(+NA)	10 <sup>-1</sup>	1	Circle and margin - translucent	Round	Small	Beige
ECRSD171	RSD	MA(+NA)	10 <sup>-1</sup>	1	Slightly raised, smooth, entire	Round	Small	Dull centre and middle ring. First and outer ring opaque cream
ECRSD172	RSD	MA(+NA)	10 <sup>-1</sup>	1	Flat, matte, diffuse margin. Bullseye effect	Round	Small	Outer white, mid cream, inner pale brown/pink
ECRSD173	RSD	MA(+NA)	10 <sup>-1</sup>	1	Irregular shape, margin, and texture. Smooth but matte	Irregular	Moderate	Outer translucent, mid cream, inner beige/peach
ECRSD174	RSD	MA(+NA)	10 <sup>-1</sup>	1	Slightly raised, smooth, entire	Round	Small	Yellow, translucent
ECRSD175	RSD	MA(+NA)	10 <sup>-1</sup>	1	Flat, smooth, round in shape with irregular margin. Striated projections.	Round	Moderate	Outer translucent, mid cream, inner beige/peach
ECRSD176	RSD	MA(+NA)	10 <sup>-1</sup>	1	Flat, irregular margin and texture. White ring	Round	Small	White ring, translucent outer
ECRSD177	RSD	MA(+NA)	10 <sup>-1</sup>	1	Round shape (maybe absence of growth) within 178.	Round	Small	Translucent
ECRSD178	RSD	MA(+NA)	10 <sup>-1</sup>	1	Even margin, smooth	Round	Small	Yellow
ECRSD179	RSD	MA(+NA)	10 <sup>-1</sup>	1	Flat, irregular margin and colour. Includes 176	Irregular	Moderate	Cream centre, translucent projections
ECRSD180	RSD	MA(+NA)	10 <sup>-1</sup>	1	Flat, smooth, irregular margin	Round	Moderate	White centre, translucent projections
ECRSD181	SGA	MA(+NA)	10 <sup>-1</sup>	1	Flat, smooth, irregular shape and colour. Darker section in between 181 and 70	Irregular	Moderate	Cream/white with brown dry spores over. Darker by 70
ECRSD(2)182	RSD(2)	MA(+NA)	10 <sup>-1</sup>	1	Flat, smooth, fairly round but with irregular margin. Joined to 180	Round	Small	Cream, opaque
ECRSD183	SGA	MA(+NA)	10 <sup>-5</sup>	1	Similar to 82/138 but more matte. Slightly raised, round, entire	Round	Small	Yellow
ECRSD184	SGA	ACT	10 <sup>-1</sup>	1	Raised, matte, orange base and dark brown raised area. Very hard!	Round	Small	Dark brown
ECRSD185	SGA	ACT	10 <sup>-1</sup>	1	Flat, smooth, entire	Round	Small	Cream/white
ECRSD186	SGA	ACT	10 <sup>-1</sup>	1	Raised, entire, matte	Round	Small	Pale orange, cream outer
ECRSD187	RSD streak	R2A	10 <sup>-1</sup>	1	Mucoid/smooth, punctiform but different sizes (each individual very very small)	Round	Small, punctiform	Pale cream
ECRSD188	SGB streak	MA(-NA)	ECRSD63	1	Flat, round, matte, dry.	Round	Small	Opaque white, matte
ECRSD189	SGA streak	MA(-NA)	ECRSD20	3	Flat, smooth, orange area in SGB20	Irregular	Moderate/small	Orange
ECRSD190	SGB streak	MA(-NA)	ECRSD16	2	Cream edging on peachy area. Flat	Irregular	Moderate	Cream
ECRSD191	SGA streak	MA(-NA)	ECRSD28	4	Round, smooth. Creamy edging on 28	Round	Moderate	Cream
ECRSD192	SGA streak	MA(-NA)	10 <sup>-5</sup>	3	Flat, fairly round, has round colonies on	Round	Small	Translucent, colourless
ECRSD193	RSD	MA(-NA)	10 <sup>-4</sup>	Many	Punctiform, smooth, round, in lawn	Round	Punctiform	Yellow
ECRSD194	RSD	MA(-NA)	10 <sup>-1</sup>	2	Flat, irregular margin and shape. In lawn	Irregular	Small	Red
ECRSD195	RSD	MA(-NA)	10 <sup>-1</sup>	2	Flat, round, even, in lawn	Round	Small	Orange
ECRSD196	SGA streak	MA(-NA)	10 <sup>-1</sup>	1	Flat, irregular margin and shape. In lawn	Irregular	Small	Yellow, translucent
ECRSD197	SGA streak	R2A	ECRSD52	3	Flat, smooth, round, even margin	Round	Small	Orange
ECRSD(2)198	RSD(2) streak	R2A	ECRSD52	1	Flat, smooth, round, even margin	Round	Small	Yellow
ECRSD199	SGA	R2A	ECRSD(2)117	8	Flat, smooth, fairly round	Round	Small	Pale grey/blue, darker in middle
ECRSD200	SGA	R2A	10 <sup>-1</sup>	1	Flat, round, even. Near to other colonies	Round	Small	Coral, translucent
ECRSD(2)201	RSD(2)	R2A	10 <sup>-1</sup>	1	Fairly flat, round	Round	Small	Creamy white, dark brown dot in centre
ECRSD(2)202	RSD(2)	R2A	10 <sup>-1</sup>	1	Flat, lawn. Irregular shape	Irregular	Small	Pale coral
ECRSD(2)203	RSD(2)	R2A	10 <sup>-1</sup>	1	Slightly raised, dry, round shape.	Round	Small	White, dark centre
ECRSD(2)204	RSD(2)	R2A	10 <sup>-1</sup>	1	Flat, round, even. Target appearance	Round	Small	Translucent, colourless. Rings
ECRSD(2)205	RSD(2) streak	MA(+NA)	10 <sup>-1</sup>	1	Coral punctiform. Round, smooth, even	Round	Punctiform	Coral
ECRSD(2)206	RSD(2) streak	R2A	ECRSD(2)169	7	Flat, round, even. Growing near to a cream colony	Round	Moderate/small	Fawn colour
ECRSD(2)207	RSD(2) streak	R2A	ECRSD(2)203	5	Flat, smooth, irregular margin and shape	Irregular	Small	Orange, bright
ECRSD(2)208	RSD(2) streak	R2A	ECRSD(2)204	1	Flat, smooth, irregular shape. Only on high density area	Irregular	Moderate/small	Pale pink



**Supplementary Figure 1 (SF1)** Angle-dependent iridescence shown by isolate ECSGA44 on original media R2A.



**Supplementary Figure 2 (SF2)** Iridescence of isolate ECSGB60 as (a) a streak, and serial dilutions from the single colony shown at  $10^{-5}$  dilution (b),  $10^{-4}$  dilution (c), and  $10^{-1}$  dilution (d).



**Supplementary Figure 3 (SF3)** Isolates (a) ECSGA124 and (c) ECRSD(2)202 on their original growth media, and Gram stained, viewed under 1000x oil immersion (b) ECSGA124, (d) ECRSD(2)202.

-	+	++	+++
19	121	94	124
	48	200	174

'-' = No inhibition zone

'+' = Either no inhibition zone but growth of isolate around inoculation point, or small opaque zone (halo)

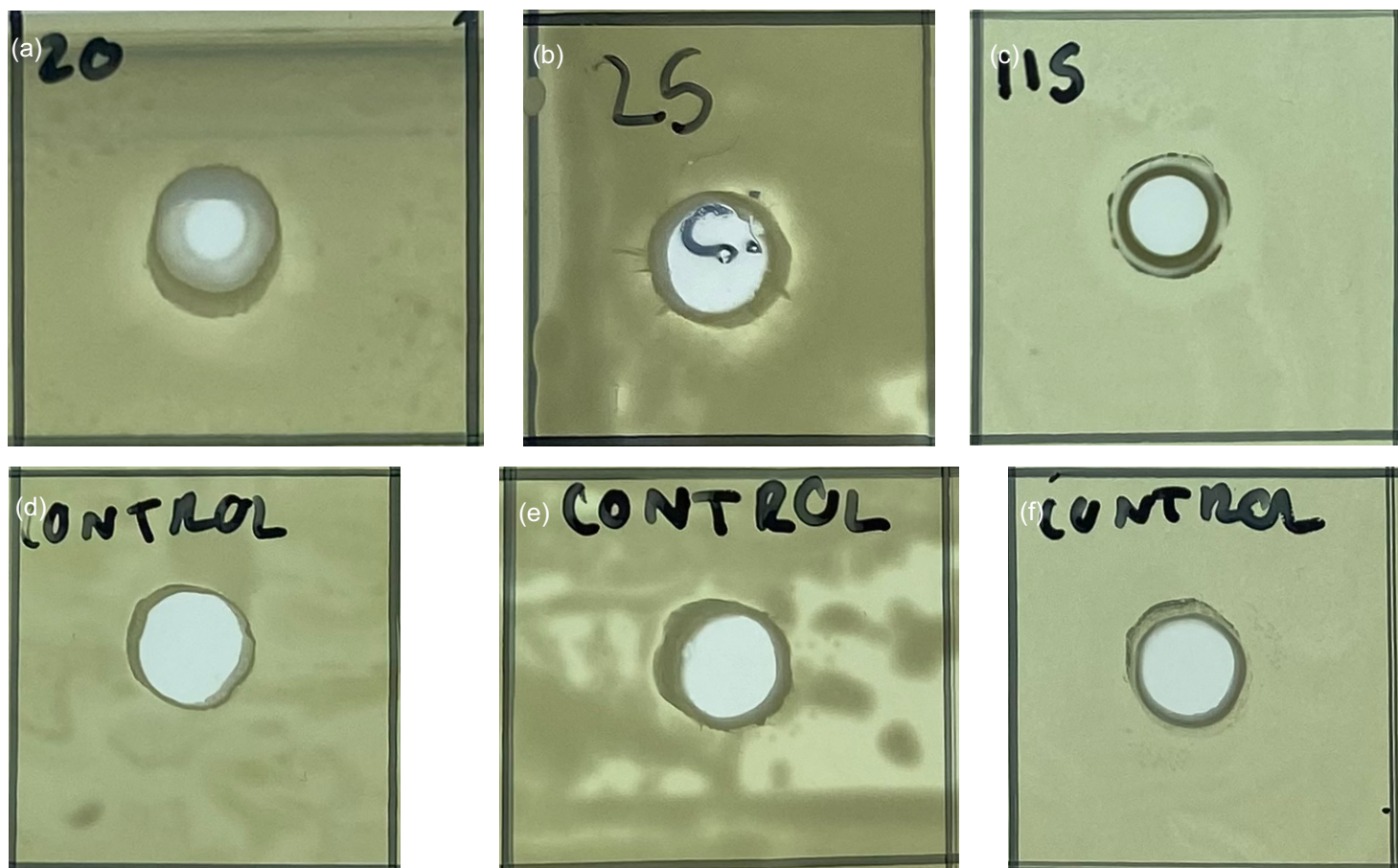
'++' = Medium to large size opaque zone, or small clear inhibition zone (with or without growth around inoculation point)

'+++ = Medium to large size clear inhibition zone with or without growth around inoculation point.

**Supplementary Figure 4 (SF4)** Examples of isolates with simultaneous antagonism activity at different levels. The following criteria was used to assess activity:



**Supplementary Figure 5 (SF5)** Example of one isolate (ECRSD(2)115) with promising cross streak activity. This isolate has activity against all three Gram positive pathogens tested (on the right hand side) where their growth inhibition is visible.



**Supplementary Figure 6 (SF6)** Isolates with feint halos in well diffusion tests, compared with control wells. (a) isolate ECSGB20 on *M.luteus* versus the control well (d), (b) isolate ECSGB25 on *K.pneumoniae* versus the control well (e), and (c) isolate ECRSD(2)115 on *Ent.faecalis* versus the control well (f).



**Supplementary Table 2 (ST2)** Simultaneous antagonism activity of isolates tested using criteria outlines in SF4. NA indicates that an isolate was not tested due to an overgrowth or contamination/co-isolation at the time of

Sample ID	Sample source	Original media	<i>E.coli</i>	<i>K.pneumoniae</i>	<i>P.aeruginosa</i>	<i>S.aureus</i>	<i>M.luteus</i>	<i>Ent.faecalis</i>	Sample ID	Sample source	Original media	<i>E.coli</i>	<i>K.pneumoniae</i>	<i>P.aeruginosa</i>	<i>S.aureus</i>	<i>M.luteus</i>	<i>Ent.faecalis</i>
ECSGA1	SGA	MA(-NA)	-	-	-	-	-	-	ECSGA49	SGA	RZA	-	-	-	-	-	-
ECSGA2	SGA	MA(-NA)	-	-	-	-	-	-	ECSGA50	SGA	RZA	-	-	-	-	-	-
ECSGA3	SGA	MA(-NA)	++	-	-	-	-	-	ECSGA53	SGA	RZA	+	-	-	++	+	-
ECSGA4	SGA	MA(-NA)	-	-	-	-	-	-	ECGB55	SGB	RZA	-	++	-	-	-	-
ECSGA5	SGA	MA(-NA)	-	-	-	-	-	-	ECGB56	SGB	RZA	-	-	-	-	-	-
ECSGA8	SGA	MA(-NA)	-	-	-	-	-	-	ECGB57	SGB	RZA	+	-	-	-	+	-
ECSGA9	SGA	MA(-NA)	-	-	-	++	+	-	ECGB58	SGB	RZA	-	-	-	-	-	-
ECSGA10	SGA	MA(-NA)	-	-	-	-	-	-	ECGB59	SGB	RZA	-	-	-	-	-	-
ECSGA11	SGA	MA(-NA)	-	-	-	-	-	-	ECGB60	SGB	RZA	+	+	+	++	+	+
ECSGA12	SGA	MA(-NA)	-	-	-	-	-	-	ECRSD62	RSD	RZA	+	+	+	+	+	+
ECSGA13	SGA	MA(-NA)	-	-	-	-	-	-	ECRSD63	RSD	RZA	+	-	+	+	+	-
ECSGA14	SGA	MA(-NA)	+	-	-	++	-	-	ECRSD64	RSD	RZA	+	-	-	-	+	-
ECSGA15	SGA	MA(-NA)	-	-	-	-	-	-	ECRSD65	RSD	RZA	+	-	+	-	+	-
ECSGA16	SGA	MA(-NA)	-	NA	NA	-	+	NA	ECSGA66	SGA	MA(+NA)	-	-	-	-	-	-
ECSGA17	SGA	MA(-NA)	-	-	-	-	-	-	ECSGA67	SGA	MA(+NA)	-	NA	NA	-	-	NA
ECGB19	SGB	MA(-NA)	-	-	-	-	-	-	ECSGA74	SGA	ACT	-	NA	NA	-	+	NA
ECGB20	SGB	MA(-NA)	++	-	-	++	+	-	ECSGA75	SGA	ACT	+	-	-	-	-	+
ECGB23	SGB	MA(-NA)	-	-	-	-	-	-	ECSGA77	SGA	ACT	-	-	-	-	-	-
ECGB24	SGB	MA(-NA)	+	-	-	-	-	+	ECSGA78	SGA	ACT	-	-	-	-	-	-
ECGB25	SGB	MA(-NA)	++	-	-	-	-	-	ECSGA79	SGA	ACT	-	NA	NA	-	-	NA
ECGB27	SGB	MA(-NA)	-	-	-	-	-	-	ECRSD(2)81	RSD(2)	MA(-NA)	-	-	-	-	-	-
ECGB28	SGB	MA(-NA)	-	-	-	-	-	-	ECRSD(2)82	RSD(2)	MA(+NA)	-	-	-	-	+	-
ECGB29	SGB	MA(-NA)	-	-	-	-	-	-	ECSGA83	SGA	MA(-NA)	-	-	-	-	-	-
ECGB33	SGB	MA(-NA)	-	-	-	-	-	-	ECSGA84	SGA	MA(-NA)	-	+	-	-	-	-
ECRSD35	RSD	MA(-NA)	-	-	-	+	-	+	ECRSD(2)85	RSD(2)	MA(-NA)	-	-	-	-	-	-
ECSGA39	SGA	RZA	-	-	-	-	-	-	ECRSD(2)86	RSD(2)	MA(-NA)	-	+	-	-	-	-
ECSGA40	SGA	RZA	-	-	-	-	-	-	ECRSD(2)87	RSD(2)	MA(-NA)	-	-	-	-	-	-
ECSGA41	SGA	RZA	+	-	-	-	-	-	ECRSD(2)88	RSD(2)	MA(-NA)	-	-	-	-	-	-
ECSGA43	SGA	RZA	-	-	-	-	-	-	ECRSD(2)89	RSD(2)	MA(-NA)	+	-	-	-	-	-
ECSGA44	SGA	RZA	-	-	-	-	-	-	ECRSD(2)90	RSD(2)	MA(-NA)	+	-	-	-	-	-
ECSGA45	SGA	RZA	+	-	-	-	-	-	ECRSD(2)91	RSD(2)	MA(-NA)	-	-	-	-	-	-
ECSGA46	SGA	RZA	-	-	-	-	-	-	ECRSD(2)92	RSD(2)	MA(-NA)	+	-	-	-	-	-
ECSGA47	SGA	RZA	-	-	-	-	-	-	ECRSD(2)93	RSD(2)	MA(-NA)	+	-	-	-	-	-
ECSGA48	SGA	RZA	++	-	-	++	+	-	ECRSD(2)94	RSD(2)	MA(-NA)	++	-	-	-	-	-

ST2 continued

Sample ID	Sample source	Original media	<i>E. coli</i>	<i>K. pneumoniae</i>	<i>P. aeruginosa</i>	<i>S. aureus</i>	<i>M. luteus</i>	<i>Ent. faecalis</i>	Sample ID	Sample source	Original media	<i>E. coli</i>	<i>K. pneumoniae</i>	<i>P. aeruginosa</i>	<i>S. aureus</i>	<i>M. luteus</i>	<i>Ent. faecalis</i>
ECRSD(2)95	RSD(2)	MA(-NA)	-	-	-	-	-	-	ECRSD(2)162	RSD(2)	MA(+NA)	+	-	-	+	+	+
ECRSD(2)96	RSD(2)	MA(-NA)	-	-	-	-	-	-	ECRSD163	RSD	MA(+NA)	-	-	-	-	-	-
ECSGA97	SGA	R2A	-	-	-	-	-	-	ECRSD164	RSD	MA(+NA)	-	-	+	-	-	-
ECSGA98	SGA	R2A	+	-	-	-	-	-	ECRSD165	RSD	MA(+NA)	-	-	-	-	-	-
ECSGA99	SGA	R2A	-	-	-	-	-	-	ECRSD167	RSD	MA(+NA)	-	-	-	-	+++	-
ECSGA101	SGA	R2A	-	-	-	-	-	-	ECRSD168	RSD	MA(+NA)	+	-	+	+	+	+
ECSGA102	SGA	R2A	-	-	-	-	-	-	ECRSD169	RSD	MA(+NA)	-	-	-	-	+++	-
ECSGA103	SGA	R2A	-	-	-	-	-	-	ECRSD170	RSD	MA(+NA)	-	-	-	-	+	-
ECSGA104	SGA	R2A	-	-	-	-	-	-	ECRSD171	RSD	MA(+NA)	+	-	-	+	+	-
ECSGB105	SGB	R2A	-	-	-	-	-	-	ECRSD173	RSD	MA(+NA)	+	NA	NA	-	+	NA
ECRSD106	RSD	R2A	+	NA	NA	-	+	NA	ECRSD174	RSD	MA(+NA)	-	-	-	-	+++	-
ECRSD(2)107	RSD(2)	R2A	-	-	-	-	-	+	ECRSD176	RSD	MA(+NA)	+	-	-	+	+	-
ECRSD(2)108	RSD(2)	R2A	-	-	-	-	-	-	ECRSD177	RSD	MA(+NA)	-	+	-	-	++	-
ECRSD(2)109	RSD(2)	R2A	-	-	-	-	-	-	ECRSD178	RSD	MA(+NA)	+	-	-	-	+++	-
ECRSD(2)110	RSD(2)	R2A	-	-	-	-	-	-	ECRSD(2)182	RSD(2)	MA(+NA)	+	-	-	-	+	-
ECRSD(2)111	RSD(2)	R2A	-	+	-	-	-	+	ECSGA183	SGA	ACT	-	-	-	-	+	-
ECRSD(2)112	RSD(2)	R2A	-	-	+	-	-	-	ECSGA184	SGA	ACT	-	-	+	-	-	-
ECRSD(2)113	RSD(2)	R2A	-	-	-	-	-	-	ECSGA185	SGA	ACT	+	-	+	-	-	-
ECRSD(2)114	RSD(2)	R2A	-	-	-	-	-	-	ECSGA186	SGA	ACT	+	-	-	-	-	-
ECRSD(2)115	RSD(2)	R2A	-	-	-	-	-	-	ECSGB188	SGB	MA(-NA)	-	+	-	-	-	-
ECRSD(2)116	RSD(2)	R2A	-	-	-	-	-	-	ECSGB189	SGB	MA(-NA)	-	-	-	-	-	-
ECRSD(2)117	RSD(2)	R2A	+	-	-	-	-	-	ECSGB190	SGB	MA(-NA)	-	+	-	-	-	-
ECSGA118	SGA	ACT	-	+	-	-	-	-	ECSGA192	SGA	MA(-NA)	-	+	-	-	+	-
ECSGA119	SGA	ACT	-	+	-	-	-	-	ECRSD193	RSD	MA(-NA)	-	NA	NA	-	-	NA
ECSGA120	SGA	ACT	-	-	+	-	-	+	ECRSD195	RSD	MA(-NA)	++	NA	NA	-	-	NA
ECSGA121	SGA	ACT	-	-	-	++	+	-	ECSGA196	SGA	R2A	+	-	-	+	+	+
ECSGA123	SGA	ACT	-	-	-	+++	+	-	ECRSD(2)198	RSD(2)	R2A	+	NA	NA	+	+	NA
ECSGA124	SGA	ACT	+	-	-	-	-	-	ECSGA200	SGA	R2A	-	-	-	++	-	-
ECSGA125	SGA	ACT	-	-	-	-	-	-	ECRSD(2)201	RSD(2)	R2A	-	-	-	-	+++	-
ECSGA126	SGA	ACT	+	+	-	++	+	+	ECRSD(2)202	RSD(2)	R2A	-	NA	NA	-	++	NA
ECSGA127	SGA	ACT	-	NA	NA	-	-	NA	ECRSD(2)203	RSD(2)	R2A	-	NA	NA	-	+	NA
ECSGB128	SGB	ACT	-	-	-	-	-	-	ECRSD(2)204	RSD(2)	R2A	-	-	-	+	+	+
ECRSD(2)142	RSD(2)	MA(+NA)	+	-	-	-	-	-	ECRSD(2)205	RSD(2)	MA(+NA)	-	-	-	+	+	-
ECRSD(2)143	RSD(2)	MA(+NA)	+	-	-	-	-	-	ECRSD(2)206	RSD(2)	R2A	+	NA	NA	-	+	NA
ECRSD(2)148	RSD(2)	ACT	-	-	-	+	+	+	ECSGA207	SGA	ACT	-	++	+	-	-	-
ECRSD(2)158	RSD(2)	MA(+NA)	-	-	-	+	+	-				-	-	-	-	-	-

**Supplementary Table 3 (ST3)** Cross streak results for isolates tested. ‘+’ indicates activity and ‘-’ indicates no activity. NA applies to isolates where pathogen control streaks were not of high enough quality to produce clear results

Sample ID	Sample source	Original media	<i>E.coli</i>	<i>K.pneumoniae</i>	<i>P.aeruginosa</i>	<i>S.aureus</i>	<i>M.luteus</i>	<i>Ent.faecalis</i>	Sample ID	Sample source	Original media	<i>E.coli</i>	<i>K.pneumoniae</i>	<i>P.aeruginosa</i>	<i>S.aureus</i>	<i>M.luteus</i>	<i>Ent.faecalis</i>
ECSGA2	SGA	MA(-NA)	-	-	-	-	NA	NA	ECSGA101	SGA	R2A	-	-	-	-	+	-
ECSGA4	SGA	MA(-NA)	-	-	-	-	+	+	ECSGA103	SGA	R2A	-	-	-	-	-	-
ECSGA10	SGA	MA(-NA)	-	-	-	-	NA	NA	ECSGA104	SGA	R2A	-	-	-	-	+	-
ECSGA11	SGA	MA(-NA)	-	-	-	-	+	+	ECRSD(2)109	RSD(2)	R2A	-	-	-	-	-	-
ECSGA12	SGA	MA(-NA)	-	-	-	-	NA	-	ECRSD(2)110	RSD(2)	R2A	-	-	-	-	-	-
ECSGA14	SGA	MA(-NA)	-	-	-	-	NA	-	ECRSD(2)111	RSD(2)	R2A	-	-	-	-	-	-
ECSGA15	SGA	MA(-NA)	-	-	-	-	NA	-	ECRSD(2)112	RSD(2)	R2A	-	-	-	-	-	-
ECSGA16	SGA	MA(-NA)	-	-	-	-	+	+	ECRSD(2)113	RSD(2)	R2A	-	-	-	-	-	-
ECSGA17	SGA	MA(-NA)	-	-	-	-	+	+	ECRSD(2)114	RSD(2)	R2A	-	-	-	+	NA	-
ECSGB24	SGB	MA(-NA)	-	-	-	-	+	+	ECRSD(2)115	RSD(2)	R2A	-	-	-	+	+	+
ECSGB25	SGB	MA(-NA)	-	-	-	-	+	+	ECRSD(2)116	RSD(2)	R2A	-	-	-	-	-	-
ECSGB27	SGB	MA(-NA)	-	-	-	-	+	+	ECRSD(2)117	RSD(2)	R2A	-	-	-	NA	NA	-
ECSGB28	SGB	MA(-NA)	-	-	-	-	+	+	ECSGA118	SGA	ACT	-	-	-	NA	NA	-
ECSGB33	SGB	MA(-NA)	-	-	-	-	+	+	ECSGA119	SGA	ACT	-	-	-	NA	NA	-
ECRSD35	RSD	MA(-NA)	-	-	-	-	+	+	ECSGA120	SGA	ACT	-	-	-	NA	NA	-
ECSGA44	SGA	R2A	-	-	-	-	+	+	ECSGA121	SGA	ACT	-	-	-	NA	NA	-
ECSGA48	SGA	R2A	+	-	-	-	-	-	ECSGA125	SGA	ACT	-	-	-	NA	+	+
ECSGA50	SGA	R2A	-	-	-	-	+	+	ECSGA126	SGA	ACT	+	-	-	NA	+	+
ECSGA53	SGA	R2A	-	-	-	-	-	-	ECSGA127	SGA	ACT	-	-	-	NA	+	+
ECSGB59	SGB	R2A	-	-	-	-	-	-	ECSGB128	SGB	ACT	-	-	-	NA	NA	-
ECSGB60	SGB	R2A	+	-	-	-	+	+	ECRSD(2)142	RSD(2)	MA(+NA)	-	-	-	NA	NA	-
ECRSD62	RSD	R2A	-	-	-	-	-	-	ECRSD(2)143	RSD(2)	MA(+NA)	-	-	-	NA	-	NA
ECRSD63	RSD	R2A	-	-	-	-	-	-	ECRSD(2)148	RSD(2)	ACT	+	-	-	NA	-	-
ECRSD64	RSD	R2A	-	-	-	-	-	-	ECRSD(2)158	RSD(2)	MA(+NA)	-	-	-	NA	-	-
ECRSD65	RSD	R2A	-	-	-	-	+	+	ECRSD(2)162	RSD(2)	MA(+NA)	+	-	-	NA	+	+
ECSGA67	SGA	MA(+NA)	-	-	-	-	-	-	ECRSD165	RSD	MA(+NA)	-	-	-	NA	-	-
ECSGA74	SGA	ACT	-	-	-	-	+	+	ECRSD167	RSD	MA(+NA)	-	-	-	NA	+	+
ECSGA75	SGA	ACT	-	-	-	-	-	-	ECRSD168	RSD	MA(+NA)	-	-	-	NA	-	NA
ECSGA77	SGA	ACT	-	-	-	-	-	NA	ECRSD173	RSD	MA(+NA)	-	-	-	NA	-	-
ECSGA78	SGA	ACT	-	-	-	-	+	+	ECRSD177	RSD	MA(+NA)	-	-	-	NA	+	+
ECSGA79	SGA	ACT	-	-	-	-	-	-	ECRSD(2)182	RSD(2)	MA(+NA)	-	-	-	NA	-	-
ECRSD(2)81	RSD(2)	MA(-NA)	-	-	-	-	-	-	ECSGA186	SGA	ACT	-	-	-	NA	-	-
ECRSD(2)82	RSD(2)	MA(+NA)	-	-	-	-	+	+	ECSGB188	SGB	MA(-NA)	-	-	-	+	+	+
ECSGA83	SGA	MA(-NA)	-	-	-	-	+	+	ECSGB189	SGB	MA(-NA)	-	-	-	-	-	-
ECSGA84	SGA	MA(-NA)	-	-	-	-	+	+	ECSGB190	SGB	MA(-NA)	-	-	-	-	NA	-
ECRSD(2)86	RSD(2)	MA(-NA)	-	-	-	-	-	-	ECSGA192	SGA	MA(-NA)	-	-	-	-	+	-
ECRSD(2)90	RSD(2)	MA(-NA)	-	-	-	-	-	-	ECRSD193	RSD	MA(-NA)	-	-	-	-	+	-
ECRSD(2)91	RSD(2)	MA(-NA)	-	-	-	-	-	-	ECRSD195	RSD	MA(-NA)	-	-	-	-	+	-
ECRSD(2)92	RSD(2)	MA(-NA)	-	-	-	-	NA	-	ECRSD(2)198	RSD(2)	MA(-NA)	-	-	-	-	-	-
ECRSD(2)94	RSD(2)	MA(-NA)	-	-	-	-	-	-	ECRSD(2)198	RSD(2)	R2A	-	-	-	-	-	-
ECRSD(2)96	RSD(2)	MA(-NA)	-	-	-	-	-	-	ECSGA200	SGA	R2A	+	NA	NA	NA	NA	NA
ECSGA97	SGA	R2A	-	-	-	-	-	-	ECRSD(2)201	RSD(2)	R2A	-	-	-	-	-	-
ECSGA98	SGA	R2A	-	-	-	-	-	-	ECRSD(2)202	RSD(2)	R2A	-	-	-	+	+	+
			-	-	-	-	-	-	ECRSD(2)204	RSD(2)	R2A	-	-	-	+	+	-

**Supplementary Table 4 (ST4)** Well diffusion results for 24 isolates carried forward for further testing and characterisation. '+' indicates activity at any level (including a faint opaque zone). '-' indicates no activity.

Sample ID	Sample source	Original media	<i>E.coli</i>	<i>K.pneumoniae</i>	<i>P.aeruginosa</i>	<i>S.aureus</i>	<i>M.luteus</i>	<i>Ent.faecalis</i>
ECSGA3	SGA	MA(-NA)	-	-	-	-	-	-
ECSGA14	SGA	MA(-NA)	-	-	-	-	-	-
ECSGB20	SGB	MA(-NA)	-	-	-	-	+	-
ECSGB25	SGB	MA(-NA)	-	+	-	-	-	-
ECRSD(2)91	RSD(2)	MA(-NA)	-	-	-	-	-	-
ECSGB188	SGB	MA(-NA)	-	-	-	-	-	-
ECRSD195	RSD	MA(-NA)	-	-	-	-	-	-
ECSGA48	SGA	R2A	-	-	-	-	-	-
ECSGA53	SGA	R2A	-	-	-	-	-	-
ECSGB57	SGB	R2A	-	-	-	-	-	-
ECSGB60	SGB	R2A	-	-	-	-	-	-
ECRSD63	RSD	R2A	-	-	-	-	-	-
ECRSD64	RSD	R2A	-	-	-	-	-	-
ECSGA101	SGA	R2A	-	-	-	-	-	-
ECRSD(2)114	RSD(2)	R2A	-	-	-	-	-	-
ECRSD(2)115	RSD(2)	R2A	-	-	-	-	-	+
ECRSD(2)116	RSD(2)	R2A	-	-	-	-	-	-
ECSGA200	SGA	R2A	-	-	-	-	-	-
ECRSD(2)201	RSD(2)	R2A	-	-	-	-	-	-
ECRSD(2)202	RSD(2)	R2A	-	-	-	-	-	-
ECRSD(2)204	RSD(2)	R2A	-	-	-	-	-	-
ECSGA124	SGA	ACT	-	-	-	-	-	-
ECSGA126	SGA	ACT	-	-	-	-	-	-
ECSGA185	SGA	ACT	-	-	-	-	-	-