

**Supplementary Table S1 – Parameters for microplate strip washer (ELx50, Biotek)**

Method	# cycles	Dispense						Aspirate				
		Volume (μL)	Flow Rate (μL/well/sec)	Height (mm)	Prime before start	Prime volume (mL)	Prime flow rate (μL/well/sec)	Height (mm)	Rate (μL/well/sec)	Delay (sec)	Crosswise	Final aspiration
Initial wash	3	250	5	120	Yes	5	1	40	1	0	No	No
After staining wash	5	250	5	120	Yes	5	1	40	1	0	No	No

**Supplementary Table S2 – Descriptive statistics for effect of cations on attachment**

Strains		15A04	15G01	16A01	33H04
Cations		mean ± SE	mean ± SE	mean ± SE	mean ± SE
Magnesium	Control	4.714 ± 0.042	4.233 ± 0.108	4.833 ± 0.029	4.729 ± 0.053
	1 mM	4.498 ± 0.205	4.823 ± 0.084	4.708 ± 0.048	4.491 ± 0.077
	10 mM	4.429 ± 0.095	4.682 ± 0.088	4.707 ± 0.043	4.684 ± 0.041
	50 mM	4.245 ± 0.117	4.704 ± 0.080	4.505 ± 0.098	4.804 ± 0.079
Calcium	Control	4.493 ± 0.123	4.186 ± 0.103	4.736 ± 0.055	4.692 ± 0.055
	1 mM	4.177 ± 0.212	4.075 ± 0.089	4.234 ± 0.126	4.439 ± 0.109
	10 mM	3.829 ± 0.034	4.704 ± 0.054	4.757 ± 0.049	4.456 ± 0.109
	50 mM	3.671 ± 0.073	4.397 ± 0.161	4.348 ± 0.057	4.086 ± 0.102
Sodium	Control	4.493 ± 0.123	4.186 ± 0.103	4.736 ± 0.055	4.692 ± 0.055
	1 mM	4.474 ± 0.094	4.329 ± 0.132	4.721 ± 0.104	4.488 ± 0.130
	10 mM	4.517 ± 0.093	4.205 ± 0.128	4.365 ± 0.086	4.130 ± 0.078
	50 mM	3.774 ± 0.081	4.245 ± 0.132	4.387 ± 0.174	4.040 ± 0.066

**Supplementary Table S3 – Tukey's 95% confidence interval comparison to test the effect of cations on attachment. (Ca- Calcium; Na- Sodium; Mg – Magnesium). The column with the letter denotes the significant difference.**

	Mean	Letter
Mg	4.612	b
Na	4.362	a
Ca	4.331	a

**Supplementary Table S4 – ANOVA summary table to test the effect of cations on attachment**

Source of variation	d.f.	F	p
Cations	2	38.14	<.001
Concentration	3	17.91	<.001
Strain	3	20.65	<.001
Cation.Concentration	6	5.6	<.001
Cation.Strain	6	3.71	0.001
Concentration.Strain	9	8.93	<.001
Cation.Concentration.Strain	18	3.3	<.001

**Supplementary Table S5 – Descriptive statistics for effect of cations on hydrophobicity**

Strains		15A04	15G01	16A01	33H04
Cations		mean ± SE	mean ± SE	mean ± SE	mean ± SE
Control	Control	91.854 ± 1.118	92.157 ± 1.062	91.346 ± 1.244	89.000 ± 0.956
Magnesium	1 mM	88.627 ± 1.388	91.919 ± 0.809	90.200 ± 1.162	88.355 ± 0.940
	10 mM	91.158 ± 1.573	86.588 ± 1.051	92.259 ± 0.557	87.384 ± 0.746
	50 mM	89.730 ± 1.126	88.047 ± 1.968	91.012 ± 1.242	90.408 ± 1.461
Calcium	1 mM	89.051 ± 1.523	89.256 ± 1.575	88.757 ± 1.270	90.0371 ± 1.509
	10 mM	89.102 ± 1.293	89.907 ± 1.137	88.493 ± 0.685	90.081 ± 0.867
	50 mM	93.420 ± 0.721	93.093 ± 0.451	92.024 ± 1.277	93.842 ± 0.773
Sodium	1 mM	88.853 ± 0.856	86.064 ± 1.868	88.926 ± 1.141	87.443 ± 1.032
	10 mM	91.362 ± 0.962	88.139 ± 1.450	91.498 ± 0.813	87.818 ± 0.744
	50 mM	87.887 ± 1.221	88.673 ± 1.157	88.557 ± 0.936	85.146 ± 1.161

**Supplementary Table S6 – ANOVA summary table to test the effect of cations on hydrophobicity**

Source of variation	df	F value	P
Cation	3	10.89	<.001
Concentration	3	2.43	0.065
Strain	3	3.36	0.019
Cation.Concentration	3	11.42	<.001
Cation.Strain	9	2.49	0.009
Concentration.Strain	9	0.76	0.658
Cation.Concentration.Strain	9	2.44	0.011

**Supplementary Table S7 - Tukey's 95% confidence interval comparison to test the effect of cations on hydrophobicity. (Ca- Calcium; Na- Sodium; Mg – Magnesium)**

Comparison	Difference	Lower 95%	Upper 95%	Significant
Na vs Mg	-1.277	-2.423	-0.13	yes
Na vs Ca	-2.225	-3.371	-1.078	yes
Na vs Control	-2.725	-4.347	-1.1036	yes
Mg vs Ca	-0.948	-2.095	0.1986	no
Mg vs Control	-1.449	-3.07	0.173	no
Ca vs Control	-0.501	-2.122	1.121	no

**Supplementary Table S8 – Descriptive statistics for effect of cations on motility**

Strains		15A04	15G01	16A01	33H04
Cations		mean ± SE	mean ± SE	mean ± SE	mean ± SE
Control	Control	26.356 ± 0.525	29.024 ± 1.813	39.771 ± 1.728	27.580 ± 0.764
Magnesium	1 mM	32.417 ± 0.746	31.18 ± 0.269	36.842 ± 0.486	27.58 ± 0.764
	10 mM	35.201 ± 0.298	26.304 ± 0.559	33.963 ± 0.336	25.06 ± 0.230
	50 mM	28.728 ± 0.867	18.037 ± 0.242	31.627 ± 0.412	24.212 ± 0.728
Calcium	1 mM	21.402 ± 0.454	19.333 ± 0.481	25.39 ± 0.379	19.865 ± 0.425
	10 mM	22.916 ± 0.545	20.555 ± 0.496	36.928 ± 0.370	26.721 ± 0.265
	50 mM	26.168 ± 0.506	20.432 ± 0.620	29.144 ± 0.393	17.28 ± 0.526
Sodium	1 mM	32.012 ± 0.547	17.494 ± 0.384	22.808 ± 0.557	15.817 ± 0.393
	10 mM	34.433 ± 0.336	31.071 ± 0.348	36.368 ± 0.686	25.708 ± 0.308
	50 mM	53.081 ± 0.423	40.263 ± 0.884	41.378 ± 0.387	43.367 ± 0.615

**Supplementary Table S9 – ANOVA summary table to test the effect of cations on motility**

Source of variation	df	F value	p
Strains	3	331.7	<.001
Cation	2	301.79	<.001
Concentration	3	146.52	<.001
Strains.Cation	6	29.46	<.001
Strains.Concentration	9	43.11	<.001
Cation.Concentration	6	288.04	<.001
Strains.Cation.Concentration	18	17.34	<.001

**Supplementary Table S10- Tukey's 95% confidence interval comparison to test the effect of cations on motility. (Ca- Calcium; Na- Sodium; Mg – Magnesium)**

Comparison	Difference	Lower 95%	Upper 95%	Significant
Ca vs Mg	-4.064	-4.713	-3.415	yes
Ca vs Na	-6.729	-7.378	-6.08	yes
Mg vs Na	-2.665	-3.315	-2.016	yes