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Phenotype Microarray Report

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Organism: Genus species (WT & Mutant) Phenotype MicroArray Plates: PM 1 Starter Agar/Broth: LB + Carbenicillin (WT), LB+ Chloramphenicol & Kanamycin (Mutant) Temperature: 37°C Protocol: Gram-negative PM Redox Dye Mix: Dye D Carbon Source: NA Additional Additives: NA Replicates: NA Report Date: 12/20/2023

Thank you for providing your *Genus specie* isolates for Phenotypic MicroArray (PM) characterization. We have a single run for your *Genus species* WT and Mutant organisms. The *G. species* WT and mutant were subcultured and struck for isolation on LB+Carbenicillin agar and LB + Chloramphenicol & Kanamycin agar, respectively, for 24 hours at 37°C. We followed the Biolog Gram-negative PM protocol, by inoculating each organism in IF-Oa inoculating fluid to a density of 42% transmittance using a turbidimeter. Based on previous data, redox dye D was used to assess cellular metabolism. The cell suspensions with redox dye were inoculated into their respective PM 1 plates at 100 µl per well. Each plate was placed on Odin set to 37°C and the kinetic data was collected every 20 minutes for 48 hours.

Below you will find the dye reduction kinetic curves generated from Odin. The image of the kinetic curves displays the OD590 values collected over time (48 hours) for PM plate 1, as requested. The graph displays the kinetic overlay of absorbance values for the WT in gold and mutant strain in black over time for each strain (time in hours on the x-axis, absorbance at OD590nm on the y-axis). We have also included a map of the PM plate for your reference.

You will also find pairwise comparisons of the mutant strain compared to the WT. The wild-type or reference strain is in pink, and the mutant or test strain is in light blue. The dark blue area indicates the overlay between the two strains. From the kinetic analysis, we calculated the difference in the maximum rate between the WT and mutant *G. species*. The maximum rate is defined as the single line fit to the plot of kinetic data that has the largest slope (in OD units per hour). Maximum rates with positive values indicate a gain in the metabolic phenotype of the mutant compared to the WT. In contrast, negative maximum rates indicate a loss of metabolic phenotype of the mutant compared to the WT.

Generally, there were no large differences in the maximum rate between the WT and mutant strains. You will find below the top 10 gain of utilization phenotypes in the mutant strain and the top 10 loss of utilization phenotypes in the mutant strain.

In addition to this report, you will find an Excel spreadsheet with the raw OD data values generated from Odin. Each sheet contains the data for each PM plate run. There is a sheet that lists the differences in the maximum rate of each substrate of the mutant compared to the WT.

Thank you for choosing Biolog Lab Services!

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48-hour Dye Reduction Kinetic Curves for G. specie (WT and Mutant)

PM1 Carbon Utilization Assays

Catalog #12111

A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
Negative Control	L-Arabinose	N-Acetyl-D-	D-Saccharic Acid	Succinic Acid	D-Galactose	L-Aspartic Acid	L-Proline	D-Alanine	D-Trehalose	D-Mannose	Dulcitol
		Glucosamine									
BI	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
D-Serine	D-Sorbitol	Glycerol	L-Fucose	D-Glucuronic	D-Gluconic Acid	D.L-a-Glycerol-	D-Xvlose	L-Lactic Acid	Formic Acid	D-Mannitol	L-Glutamic Acid
				Acid		Phosphate					
				, tota		1 Hospitale					
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
D-Glucose-6-	D-Galactonic	D L-Malic Acid	D-Ribose	Tween 20	L-Phamnose	D-Fructose	Acetic Acid	g-D-Glucose	Maltose	D-Melibiose	Thymidine
Phosphate	Acid and actions	D,E Male Acia	0 100000	incen 20	L'Infontione	Diffactose	Aceteracia	a b olacose	marcoac	D The libroac	mymane
ritospilate	Acid-J-Cactorie										
D-1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12
L-Amaracine	D-Amartic Acid	D-Glucocaminic	12-Propagadial	Tween 40	g-Kato-Glutaria	a Kato Buturio	g-Mathul-D-	g-D-Lactore	Lactulore	Sucross	Uridina
L-Asparagine	D-Aspartic Acia	A cid	1,2-Propariedior	Tween to	A cid	A sid	Galactorida	u-D-Lactobe	Lacturose	Sucrose	oridine
		Acto			Acid	Acia	Galactosde				
FI	F2	F3	F4	F5	F6	F7	F8	F9	F10	FII	F12
L-Glutamine	m-Tartaric Acid	D-Glucore-1-	D-Fructore-6-	Tween 80	a-bludrovy Glutaric	a-Hudroxy	R-Mathul-D-	Adopitol	Maltotriosa	2-Decry	Adenosine
L-Oldcarnine	In Francaric Acia	D-oldcose-I-	Dheenhate	Iweenoo	A sid as Lastens	Duturio A aid	Chuesside	Addition	Marcounose	2-Deoxy	Adenosite
		Phosphate	Phosphate		Acid-y-Lactone	Butyric Acid	Glucosde			Adenosne	
F1	F2	E3	E4	E5	E6	F7	E9	F9	E10	E11	E12
Church L. Armantia	Citrie A aid	mus inseitel	D. Threeping	Fumaria A aid	Promo Succipio	Propiopie A eld	Music Asid	Chucolle A eld	Chronulle Aeid	D. Callabiasa	Inadina
Giyeyi-L-Aspartic	CIUICACIO	inyo-mositor	D-mieonine	Fumaric Acid	Bromb Succinic	Propionic Acid	Mucic Acia	Olycolic Acid	Giyoxyiic Acid	D-Cellobiose	moane
Acid					Acid						
GI	62	63	G4	65	G6	67	68	69	G10	GII	G12
Chrouble	Tricarballulio	L-Serine	L-Threepine	L-Alanina	L-Alanul Chusing	A cotopostio A cid	N Acetul & D	Mono Mothul	Mathud Durawata	D Malia A aid	L Malia A aid
Chatageis A sid	A sid	L-Serine	L-meonine	L-Marine	L-Many-Olycine	Acetoacetic Acid	N-Acetyr-IS-D-	Cussisses	MethyrPyruvate	D-Malic Acid	C-malic Acid
Giutamic Acid	Acid						Mannosamine	Succinate			
H1	112	112	ни	LLE.	HE	47	10	40	110	1111	412
Church L. Draffan	n Hudrow Dhamil	ri Juliu dan wa Dhamul	Turnering	D Drivers		Charmenerida	Durania A sid	L Calestania	D. Calastronia	Changed at had a series	2. A min and hannel
Giycyi-L-Proline	p-Hydroxy Phenyl	m-Hydroxy Phenyl	ryramne	D-Psicosé	L-Lyxose	Giucuronamide	Pyruvic Acid	L-Galactonic	D-Galacturonic	Phenylethyl-amine	2-Ammoethanol
	Acetic Acid	Acetic Acid					1	Acid-y-Lactone	Acia		
								1			



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G. species WT vs. Mutant

Test: G. species Mutant

Reference: G. species WT

Test					Reference							
20231130-2769 to 20231130-2768 PM01 (Phenotyping Microbial) - λ 590nm												
	1	2	3	4	5	6	7	8	9	10	11	12
	-2.7e-5	-7.1e-4	3.0e-4	-1.0e-4	-2.1e-4	3.0e-4	-1.8e-4	-1.2e-4	7.1e-5	1.1e-3	1.1e-3	-3.1e-5
	Negative Control	L-Arabinose	<u>N-Acetyl-D-Glu</u>	D-Saccharic acid	Succinic acid	<u>D-Galactose</u>	L-Aspartic acid	L-Proline	D-Alanine	D-Trehalose	D-Mannose	Dulcitol
	1.6e-3	1.5e-3	1.8e-4	4.8e-4	1.7e-3	1.8e-3	-2.7e-6	-2.7e-4	6.4e-5	-8.9e-5	1.0e-3	-1.5e-4
в												
	D-Serine	D-Sorbitol	Glycerol	L-Fucose	D-Glucuronic acid	D-Gluconic acid	DL-alpha-Glyce	D-Xylose	L-Lactic acid	Formic acid	D-Mannitol	L-Glutamic acid
	-3.9e-4	3.7e-5	-1.2e-4	-3.8e-4	-1.2e-4	8.0e-4	8.7e-4	9.6e-7	3.4e-5	7.1e-4	-3.3e-4	-2.1e-4
0												
ľ												
\vdash	D-Glucose 6-ph	D-Galactonic aci	DL-Malic acid	D-Ribose	Tween 20	L-Rhamnose	D-Fructose	Acetic acid	alpha-D-Glucose	D-Maltose	D-Melibiose	Thymidine
	3.08-4	1.06-4	-3.36-7	1.08-5	-3.36-5	-1.36-3	4./8-3	1.96-4	1.36-4	-2.46-4	-1.16-3	0.16-4
D												
	L-Asparagine	D-Aspartic acid	D-Glucosaminic	<u>1,2-Propanediol</u>	Tween 40	alpha-Keto-Glut	alpha-Keto-But	Methyl alpha-D	Lactose	Lactulose	Sucrose	Uridine
	-4.6e-5	-4.1e-5	-1.7e-4	-5.2e-4	4.7e-5	-7.9e-5	-4.6e-5	1.1e-3	-9.4e-6	-2.7e-5	-2.5e-5	3.2e-5
F												
-												
	L-Glutamine	<u>meso-Tartaric a</u>	alpha-D-Glucos	<u>D-Fructose 6-p</u>	Tween 80	alpha-Hydroxy	DL-alpha-Hydro	Methyl beta-D	Adonitol	Maltotriose	<u>2 -Deoxyadeno</u>	Adenosine
	-/.4e-5	-1.96-4	7.8e-5	-4.68-3	-/.ue-5	-3.66-3	-/./e-6	5.56-4	-1.96-5	1.46-0	9.10-4	-4.36-4
F												
	Gly-Asp	Citric acid	myo-Inositol	D-Threonine	Fumaric acid	Bromosuccinic a	Propionic acid	Mucic acid	Glycolic acid	Glyoxylic acid	D-Cellobiose	Inosine
\vdash	-4.1e-5	-1.0e-4	9.1e-4	-3.1e-5	-2.4e-4	-2.1e-4	-8.4e-5	-1.8e-4	-7.6e-5	-1.0e-4	1.2e-5	-1.4e-4
G												
	Gly-Glu	Tricarballylic acid	L-Serine	L-Threonine	L-Alanine	<u>Ala-Gly</u>	Acetoacetic acid	<u>N-Acetyl-D-Ma</u>	Succinic acid mo	Methyl Pyruvate	D-Malic acid	L-Malic acid
	-9.7e-5	1.3e-4	-3.2e-5	4.2e-5	-1.9e-4	-6.3e-4	-3.3e-5	2.2e-3	1.4e-3	1.4e-3	-7.5e-5	-5.3e-5
н												
	Gly-Pro	<u>p-Hydroxyphen</u>	m-Hydroxyphen	Tyramine	D-Psicose	L-Lyxose	Glucuronamide	Pyruvic acid	L-Galactonic aci	D-Galacturonic	2-Phenylethyla	2-Aminoethanol

Metabolics Gained in Mutant Phenotype

Chemical	Well	Difference in Maximum Rate	Info
Pyruvic acid	H08	2.17E-03	C-Source; carboxylic acid
D-Gluconic acid	B06	1.82E-03	C-Source; carboxylic acid
D-Glucuronic acid	B05	1.74E-03	C-Source; carboxylic acid
D-Serine	B01	1.58E-03	C- Source; amino acid
D-Sorbitol	B02	1.54E-03	C-Source; carbohydrate
L-Galactonic acid lactone	H09	1.38E-03	C-Source; carboxylic acid
D-Galacturonic acid	H10	1.38E-03	C- Source; carboxylic acid
B-Methyl Glucoside	E08	1.14E-03	C-Source; carbohydrate
D-Mannose	A11	1.07E-03	C-Source; carbohydrate
D-Trehalose	A10	1.05E-03	C-Source; carbohydrate

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Metabolics Lost in Mutant Phenotype

Chemical	Well	Difference in Maximum Rate	Info
Sucrose	D11	-1.10E-03	C- Source; carbohydrate
L-Arabinose	A02	-7.11E-04	C-Source; carbohydrate
L-Lyxose	H06	-6.26E-04	C-Source; carbohydrate
Fructose 6 phosphate	E04	-5.22E-04	C-Source; carbohydrate
Inosine	F12	-4.31E-04	C-Source; nucleoside
Glucose 6 phosphate	C01	-3.91E-04	C-Source; carbohydrate
D-Ribose	C04	-3.77E-04	C- Source; carbohydrate
D-Melibiose	C11	-3.29E-04	C-Source; carbohydrate
D-Xylose	B08	-2.71E-04	C- Source; carbohydrate
Lactulose	D10	-2.41E-04	C- Source; carbohydrate