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Phenotype MicroArray Services

Customer:	Lisa Morici				
# Strains:	1, *P. put.;* 1, mix culture	**# conditions:**	1	**Temperature:**	25C
Profile Type:	Full Profile	**plates/profile:**	20	**#pairwise comparisons:**	1

Dear Dr. Morici,

Thank you for using Phenotype MicroArray™ (PM) Services. This confirms the completion of your PM Services and details the results. We have completed duplicate runs of each of the strains/conditions and created **pairwise** comparisons according to your instructions. Please use this letter as a guide to walk through the attached reports.

Attached you will find OmniLog® V. 1.5 Comparison Module reports (MS Word documents) of each comparison with images of the profiles.

a. Reproducibility report containing correlation plots of the independent runs. Reproducibility analysis indicates the number of wells where the difference of average height between duplicate runs is above a threshold value, which is indicated in the report. Average height is the area under the curve divided by number of reads. Pass/fail is determined by the number of such wells above a threshold value (usually 12 wells).
b. Run1 and Run2 images. Test in green and reference in red.
c. An image with consensus calls. "average height" is the sum of the reads divided by the number of reads. Boxed wells exceed the "average height" threshold in both of the two independent experiments. This means that the absolute value of the arithmetic difference (test minus reference) is above threshold. Positive differences may be gained phenotypes or resistance of the test strain relative to the reference strain. Negative differences may be lost phenotypes or sensitivity of the test strain relative to the reference strain.
d. A report of wells above threshold.
e. Please note that the filename is usually built using the format "test versus reference.doc".

Find information on PM Technology at: http://www.biolog.com/phenoMicro.html
Find information on PM Services at: http://www.biolog.com/PM_Services.html
Find PM maps at the following URL: http://www.biolog.com/PM_Maps.html
Please review our Frequently Asked Questions: http://www.biolog.com/PM_FAQ.html

PsppSIDx5842xMixCulture versus PputSIDx5841xPputida

All plates passed reproducibility analysis at 24 hours of incubation. The mix culture grew more slowly in some conditions (eg. PM5) and was less reproducible at timepoints later than 24 hours.

1) Carbon utilization (PM1,2): Positive differences were observed for most categories of carbon sources except alcohols. Positive differences for amino acids were limited to dipeptides. Negative differences were observed for L-amino acids and carboxylic acids.
2) Nitrogen utilization (PM3, 6-8): Positive differences were observed for many dipeptides and a few other nitrogen sources. Negative differences were seen across all categories of nitrogen sources including most amino-acids.
3) Phosphorus and Sulfur (PM4): Positive differences include 2',3' cyclic nucleotides. Negative differences include a variety of organic and inorganic phosphorus and sulfur sources.
4) Nutrient Stimulation (PM5): The mix culture did not come up until after 24 hours for the most part. Stimulation of the mix culture was observed for oxalacetic acid (PM5, G10) and perhaps a few others.
5) Osmolarity and pH (PM9, 10): Negative differences were observed for benzoate and nitrate (PM9, G5-6; H4-6). A negative difference was observed for pH=4.5 (PM10, A3). Positive differences were observed for growth at pH=9.5 in the presence of L-norleucine (PM10, G2), L-histidine (PM10, E9), and L-phenylalanine (PM10, F2).
6) Chemical sensitivity (PM11-20): Positive differences include chelators, membrane disruptors, anti-cholinergics, respiration inhibitors, toxic ions, and others. Negative differences include capsule inhibitors, inhibitors of nucleic acid metabolism, oxidizing agents, nucleotide analogs, various antibiotics, and ionophores.

We hope that this information is useful to you in your studies. As a next step, we recommend that you independently verify any phenotypes that you consider important. Please let us know if you follow-up on these phenotypic leads. It will be very useful to us. We are more than happy to consult with you on methods for the validation of these observations. Please contact me to discuss this data over the phone (510-670-3370).

Biolog can provide you with the fully automated OmniLog system for PM testing in your own laboratory. Please contact sales@biolog.com or call 510-785-2564 if you would like more information. Our sales staff will follow up with you regarding the use of PM systems in your research efforts.

Sincerely,
Michael Ziman, Ph.D.

Michael Ziman

Director, PM Services

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