**Description of metabolomics samples from Exp.1 – 2 unit membrane separated bioreactor vs. mixed co-culture experiment**

Three types of samples and example of the sample naming.

1a.1 – membrane bioreactor #1. *S.elongatus* unit “a”. Sample at Day 1.

1b.1 – membrane bioreactor #1. *R.toruloides* unit “b”. Sample at Day 1.

11.1 – mixed bioreactor with *S.elongatus* or *S.elongatus+ R.toruloides*. Sample at Day 1.

First # is the # of the bioreactor.

**Reactors 1, 2 and 3** are membrane reactors with letter “a” is the *S.elongatus* unit and “b” is for *R.toruloides* unit of the membrane bioreactor.

**Reactors 4, 5 and 6** are membrane reactors with letter “a” is the *S.elongatus* unit and “b” is for *a BLANK* unit (no cells) of the membrane bioreactor. This is axenic *S.elongatus* in membrane bioreactor.

**Reactors 11, 12 and 13** are mixed reactors with *S.elongatus* and *R.toruloides* growing as mixed co-culture in same volume.

**Reactors 14, 15 and 16** are mixed reactors with *S.elongatus* growing as axenic culture in mixed bioreactor.

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| Figure of the membrane bioreactor | Figure of the mixed bioreactor |
| ***R.toruloides unit “b”***  ***S.elongatus unit “a”***  **membrane** |  |

Last # in the sample name represents the day of sampling, from 1 to 9.

Sample with name “0” is the blank medium before adding cells.

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| **Box image** | **Description of the samples.** |
| A picture containing honeycomb  Description automatically generated | Box label: **mBR metabolomics. Days 0-4**  **one sample per culture**  **Pavlo B. 8/12/12 S.elongatus+R.toruloid**  Sample “0” is blank medium prior adding cells.  Samples on the left top:  1a-6a for day 1  1b-6b for day 1  11-16 for day 1  Same for day 2  Same for day 3  Same for day 4 |
| A picture containing indoor, decorated  Description automatically generated | Box label: **S.e+R.t mBR metabolomics.**  **Samples days 5-8**  **8/15/12 P.B.**  Samples on the left:  1a-6a for day 5  1b-6b for day 5  11-16 for day 5  Same for day 6  Same for day 7  Same for day 8 |
|  | Box label: **S.elongatus+R.toruloid**  **mBR metabolomics. P.B.**  **Samples Day 9**  **8/18/12**  Samples on the left:  1a-6a for day 9  1b-6b for day 9  11-16 for day 9 |