**Table 2.** Different growth conditions prepared by limitation of sources.

Constraints-based flux analysis was used to calculate predicted growth rates for the strains under 19 simulated growth conditions. For direct comparison with *in vivo* strains, experimentally determined substrate and oxygen uptake rates were used as input parameters for the computational simulations. We labeled each condition as in SI Table 1.

| **Description** | **(1) minimal with glucose, with oxygen** | **(2) anaerobic minimal with glucose** | **(3) aerobic minimal with fructose** | **(4) anaerobic minimal with fructose** | **(5) aerobic minimal with acetate** | **(6) aerobic minimal with succinate** | **(7) aerobic minimal with pyruvate** | **(8) aerobic minimal with arginine** | **(9) aerobic minimal with triptophan** | **(10) aerobic minimal with glutamate** |
|---|---|---|---|---|---|---|---|---|---|---|
| **Medium Composition** | **glucose: -10**<br>**oxygen: -20** | **glucose: -10**<br>**oxygen: 0** | **fructose: -10**<br>**oxygen: -20** | **fructose: -10**<br>**oxygen: 0** | **acetate: -10**<br>**oxygen: -20** | **succinate: -10**<br>**oxygen: -20** | **pyruvate: -10**<br>**oxygen: -20** | **arginine: -10**<br>**oxygen: -20** | **triptophan:-10**<br>**oxygen: -20** | **glutamate: -10**<br>**oxygen: -20** |

| **Description** | **(11) minimal with glucose, limited by C** | **(12) anaerobic minimal with glucose, limited by C** | **(13) minimal with glucose, limited by P** | **(14) anaerobic minimal with glucose, limited by P** | **(15) minimal with glucose, limited by N** | **(16) anaerobic minimal with glucose, limited by N** | **(17) minimal with glucose, limited by S** | **(18) anaerobic minimal with glucose, limited by S** | **(19) minimal with glucose, with low oxygen** |
|---|---|---|---|---|---|---|---|---|---|
| **Medium Composition** | **glucose: -6**<br>**oxygen: -20** | **glucose: -6**<br>**oxygen: 0** | **glucose: -10**<br>**oxygen: -20**<br>**PI: -0.5** | **glucose: -10**<br>**oxygen: 0**<br>**PI: -0.12** | **glucose: -10**<br>**oxygen: -20**<br>**$NH_4$: -5.91** | **glucose: -10**<br>**oxygen: 0**<br>**$NH_4$: -1.38** | **glucose: -10**<br>**oxygen: -20**<br>**$SO_4$: -0.13** | **glucose: -10**<br>**oxygen: 0**<br>**$SO_4$: -0.03** | **glucose: -10**<br>**oxygen: -0.6** |