

Table S1. Summary statistics

A. Development time

| Factor | Coefficient | Coefficient standard error | z* | p |
|--------------------------|-------------|----------------------------|--------|----------|
| Dietary yeast | -0.4835 | 0.1394 | -3.47 | 0.00052 |
| Dietary glucose | -1.9789 | 0.1619 | -12.22 | <0.00001 |
| Microbiota | 0.4900 | 1.1782 | 0.42 | 0.68 |
| Yeast*glucose | 0.2304 | 0.0241 | 9.55 | <0.00001 |
| Yeast * Microbiota | -0.2117 | 0.1827 | -1.16 | 0.25 |
| Glucose * microbiota | 0.5866 | 0.1969 | 2.98 | 0.0029 |
| Yeast*glucose*microbiota | -0.0652 | 0.0303 | -2.15 | 0.031 |

B. Body mass, nutritional indices and food uptake

| Factor | Body weight | | protein | | Triglyceride ¹ | | glycogen | | trehalose | | glucose | | Food uptake ² | |
|----------------------|------------------------------|------------------------------|---------------------------|----------------------------|-----------------------------|-----------------------------|----------------------------|----------------------------|-----------------------------|----------------------------|----------------------------|----------------------------|------------------------------|-----------------------------|
| | male | female | male | female | male | female | male | female | male | female | male | female | male | female |
| Microbiota | F _{1,138} = 1.07 | F _{1,138} = 13.8*** | F _{1,137} = 0.81 | F _{1,138} = 4.17* | F _{1,137} = 241*** | F _{1,138} = 139*** | F _{1,135} = 28*** | F _{1,138} = 34*** | F _{1,135} = 22*** | F _{1,138} = 38*** | F _{1,118} = 94*** | F _{1,120} = 66*** | F _{1,416} = 180*** | F _{1,394} = 97*** |
| Dietary glucose | F _{1,138} = 0.19 | F _{1,138} = 11.8*** | F _{1,137} = 0.10 | F _{1,138} = 0.96 | F _{1,137} = 98*** | F _{1,138} = 90*** | F _{1,135} = 15*** | F _{1,138} = 20*** | F _{1,135} = 15*** | F _{1,138} = 16*** | F _{1,118} = 44*** | F _{1,120} = 41*** | F _{1,416} = 295*** | F _{1,394} = 56*** |
| Dietary yeast | F _{1,138} = 13.0*** | F _{1,138} = 50.8*** | F _{1,137} = 0.54 | F _{1,138} = 10.7* | F _{1,137} = 19*** | F _{1,138} = 9.3** | F _{1,135} = 0.14 | F _{1,138} = 40*** | F _{1,136} = 0.24 | F _{1,138} = 26*** | F _{1,118} = 1.16 | F _{1,120} = 16*** | F _{1,416} = 64*** | F _{1,394} = 414*** |
| Microbiota x glucose | F _{1,138} = 16.0*** | F _{1,138} = 50.8*** | F _{1,137} = 4.3* | F _{1,138} = 2.05 | F _{1,137} = 0.06 | F _{1,138} = 9.6** | F _{1,135} = 1.83 | F _{1,138} = 7.1** | F _{1,135} = 9.53** | F _{1,138} = 5.8* | F _{1,118} = 2.1 | F _{1,120} = 1.5 | F _{1,416} = 13.5*** | F _{1,394} = 3.3 |
| Microbiota x yeast | F _{1,138} = 8.6** | F _{1,138} = 19.1*** | F _{1,137} = 0.37 | F _{1,138} = 1.27 | F _{1,137} = 0.89 | F _{1,138} = 0.12 | F _{1,135} = 0.59 | F _{1,138} = 3.0 | F _{1,135} = 0.42 | F _{1,138} = 0.01 | F _{1,118} = 0.12 | F _{1,120} = 13*** | F _{1,416} = 0.41 | F _{1,394} = 8.3** |
| Glucose x yeast | F _{1,138} = 0.11 | F _{1,138} = 0.14 | F _{1,137} = | F _{1,138} = 1.33 | F _{1,137} = 8.0** | F _{1,138} = 1.02 | F _{1,135} = 12*** | F _{1,138} = | F _{1,135} = | F _{1,138} = 0.03 | F _{1,118} = 2.4 | F _{1,120} = 0.38 | F _{1,416} = 108*** | F _{1,394} = 22*** |

| | | | | | | | | | | | | | | |
|------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------|--------------------|-------------------|--------------------|--------------------|-------------------|---------------------|------------------------|-------------------|
| | | | 0.08 | | | | | 0.003 | 7.77** | | | | | |
| Microbiota x glucose x yeast | $F_{1,138} = 0.04$ | $F_{1,138} = 0.39$ | $F_{1,137} = 0.06$ | $F_{1,138} = 1.89$ | $F_{1,137} = 2.93$ | $F_{1,137} = 5.4^*$ | $F_{1,135} = 0.64$ | $F_{1,138} = 3.8$ | $F_{1,135} = 1.51$ | $F_{1,138} = 1.59$ | $F_{1,118} = 2.0$ | $F_{1,120} = 6.8^*$ | $F_{1,416} = 8.7^{**}$ | $F_{1,394} = 1.1$ |

¹ Following square-root transformation; ² Following logarithmic transformation