**Supplementary Table 12. Summary of axenic fly lifespan data in previous reports.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Author** | **Strain** | **Sex** | **Food contents** | **Dominant bacteria** | **Axenic method** | **Lifespan change** | **Reference** |
| **Bleaching** | **Antibiotics** |
| 1 | Lee *et al*. | *w1118* | Female | 2.5% yeast11% sugar5.2% cornmeal1% agar0.04% methyl 4 hydroxybenzoate0.5% propionic acid | *Acetobacter persici* JCM25330(T)*Acetobacter malorum* LMG1746(T)*Lactobacillus brevis* ATCC14869(T)*Lactobacillus plantarum* ATCC14917(T) | 3 % sodium hypochlorite  | 640 μg/ml doxycycline640 μg/ml ampicillin1 mg/ml kanamycin | Increased | Our study |
| 2 | Brummel *et al*. | *w1118* | Male | 5% dextrose2.5% sucrose1.5% yeast17% cornmeal0.9% agar0.09% propionic acid0.09% phosphoric acid | *LactobacillusGluconobacterEnterobacterAnaerococcus* | 2.7 % sodium hypochlorite  | 500 μg/ml ampicillin50 μg/ml tetracycline200 μg/ml rifamycin | Bleaching: 30% decreased (22 °C)Antibiotics: 35% decreased (25 °C) | Brummel *et al*. (2004) *PNAS* 101(35): 12974-12979 |
| 3 | Ren *et al*. | Canton-S and Oregon-R | Male | 10.5% dextrose0.75% Agar2.6% yeast5 % cornmealTegoseptPropionic acid | *Acetobacter acetiAcetoacter tropicalisAcetobacter pasterianusLactobacilles plantarumLactobacillus sp.* MR-2*Cladosporium sphaerospermumLactobacillus homohiochiiLactobacillus fructivoransAcetobacter tropicalisLactobacillus brevis* | 0.25% Clorox and 0.04% n-alkyl dimethyl benzyl ammonium chloride | 640 μg/ml doxycycline640 μg/ml ampicillin1 mg/ml kanamycin | Bleaching: increased (n.s.†)Antibiotics: No increased (n.s.†) | Ren *et al*. (2007) *Cell Metab.* 6(2): 144-152 |
| 4 | Ridley *et al*. | Canton-S | Male | 9.6% glucose4.8% inactive dry yeast1.4% agar | including *Acetobacter pomorum* strainEW816 and *Lactobacillus plantarum* strain WCFS1 | 10% sodium hypochlorite solution | 　 | Increased (n.s.†) | Ridley *et al*. (2012) *PLoS One* 7(5): e36765 |
| 5 | Lee *et al*. | *w1118* | Male | Standard cornmeal-agar medium  | 　 | First generation, 2.7 % sodium hypochlorite  | 　 | Increased | Lee *et al*. (2013) *Cell* 153(4): 797-811 |
| 6 | Petkau *et al*. | *w1118* | Male and female | Cornmeal-dextrose-yeast media |  |  | 100 g/ml ampicillin50 g/ml vancomycin100 g/ml neomycin100 g/ml metronidazole | Increased | Petkau *et al*. (2014) *J Biol Chem.* 289(41): 28719 -28729 |
| 7 | Clark *et al*. | *w1118* and Canton-S | Female | Standard cornmeal medium1% agar3% brewer’s yeast 1.9% sucrose3.8% dextrose9.1% cornmeal | 　 | 3% sodium hypochlorite | 　 | Increased | Clark *et al*. (2015) *Cell Rep.* 12(10): 1656-1667 |
| 8 | Yamada *et al*. | Wolbachia–free Dahomey | Male | 0.5% yeast extract5% sucrose8.6% cornmeal0.5% agar0.4% propionic acid0.035% phosphoric acid | *Issatchenkia orientalis**Lactobacillus plantarum**Acetobacter indonesiensis**Saccharomyces cerevisiae* | 3% sodium hypochlorite |  | No effect | Yamada *et al*. (2015) *Cell Rep.* 10(6): 865–872 |
| 9 | Galenza *et al*. | *w1118* | Male and female | 10 % D-glucose5 % starch7 % casein5 % palmitic acid1 % ethanol | *AcetobacterLactobacillusStreptococcusLactococcusStaphylococcusRalstoniaStenotrophomonasMethylobacteriumPropionobacteriumBradyrhizobiumHerbaspirillumMicrococcusFinegoldiaAbiotrophiaNeisseria* | 　 | 100 μg/ml ampicillin50 μg/ml vancomycin100 μg/ml neomycin100 μg/ml metronidazole | Increased | Galenza *et al*. (2016) *Biol Open.* 5: 165-173 |
| 10 | Fast *et al*. | *w1118* | Virgin female | Autoclaved standard cornmeal medium |  | 10% sodium hypochlorite solution | 100 μg/ml ampicillin100 μg/ml metronidazole40 μg/ml vancomycin100 μg/ml neomycin | Antibiotics (increased and no effect)Bleach (no effect) | Fast *et al*. (2016) *BioRxiv* doi.org/10.1101/049981 |
| 11 | Li *et al*. | *w1118* | Female | Yeast/molasses-based standard fly food 1.38% agar2.2% molasses7.5 % malt extract1.8 % dry yeast8 % corn flour1 % soy flour0.625 % propionic acid0.2% Methyl 4-Hydroxybenzoate in 0.72% ethanol | *Acetobacter pasteurianusEscherichia albertiiLactobacillus fructivoransLactobacillus homohiochiiSerratia entomophilaLactobacillus senmaizukeiStenotrophomonas pavaniiMethylobacterium jeotgali* | 　 | 50 μg/ml ampicillin50 μg/ml tetracycline50 μg/ml erythromycin50 μg/ml kanamycin | No effect (29 °C) | Li *et al*. (2016) *Cell Host Microbe* 19(2): 240-253 |
| 12 | Dantoft *et al*. | Oregon-R | Male and female mixed | 1.26% dry yeast, 0.05 % syrup, 4 % instant mashed potato powder, 1 % agar0.85% Nipagin ® and 0.025 % ascorbic acid | *ActinobacteriaAlphaproteobacteria/otherAlphaproteobacteria/RhodospirillalesBacteria/otherFirmicutes/LactobacillalesFirmicutes/otherGammaproteobacteria/otherGammaproteobacteria/PasteurellalesProteobacteria/otherUnclassified* | 　 | 100 μg/ml of carbenicillin100 μg/ml of neomycin50 μg/ml of vancomycin 100 μg/ml of metronidazole | 25% increased | Dantoft *et al*. (2016) *J Innate Immun.* 8: 412-426 |
| 13 | Gould *et al*. | Wolbachia–free Canton-S  | Female | 6.67% cornmeal2.7% active dry yeast1.6% sucrose0.75% sodium tartrate0.73% ethanol0.68% agar0.46% propionic acid0.09% methylparaben0.06% calcium chloride0.01% molasses | 　 | Multiple generations, 0.6% sodium hypochlorite  | 　 | Increased | Gould *et al*. (2017) *BioRxiv* doi.org/10.1101/232959 |
| 14 | Téfit and Leulier | *yw* | Male and female | 5% inactivated yeast8% cornmeal1% agar0.52% methylparaben sodium salt0.4 ml 99% propionic acid |  | Bleaching | 50 μg/L ampicillin50 μg/L kanamycin50 μg/L tetracycline15 μg/L erythromycin | Increased | Téfit and Leulier (2017) *J Exp Biol.* 220: 900-907 |
| 15 | Loch *et al*. | *TubGS* or *TiGS*/UAS-*Dro* or *CecA1* | Female | <Rearing>5.7 % cornmeal1.15 % yeast0.6 % agar-agar7% sugar beet molasses1.14 % Nipagin<Experiment>7.5% yeast autolysate 7.5% glucose2.1% ethanol2% Kobe I agar 0.3% Nipagin | *Lactobacillus* (60.87%)*Acetobacter* (38.96%)*Pseudomonas* (0.07%)*Uncultured bacteria* (0.04%)*Erwinia* (0.02%)*Propionibacterium* (0.02%)*Cupriabidus* (<0.01%)*Escherichia* (<0.01%) | 　 | 500 μg/ml ampicillin 50 μg/ml tetracycline 200 μg/ml rifampicin | TubGS>Dro (RU-) 15.6% increased TiGS2>Dro (RU-) 11.5% increased | Loch *et al*. (2017) *PLoS One* 12(5): e0176689 |
| 16 | Obata *et al*. | *wiso31* | Male and female | 2.34% autolysed yeast extract5.85% glucose6.63% cornmeal0.702% agar1.95% antimycotic solution containing 0.04% bavistan and 10% nipagin | *Acetobacter acetiAcetobacter siceraeAcetobacter orleanensisAcetobacter pomorumAcetobacter pasteurianusLactobacillus plantarum Lactobacillus pentosus* | 　 | RTA:200 μg/mL rifamycin50 μg/mL tetracycline500 μg/mL ampicillinMVNTA:100 μg/mL metronidazole50 μg/mL vancomycin100 μg/mL neomycin50 μg/mL tetracycline100 μg/mL ampicillin | RTA 21.8% increasedMVNTA 18.2% increased | Obata *et al*. (2018) *Nat Commun.* 9(975): 1-12 |
| 17 | Sannino *et al*. | Wolbachia–free Canton-S  | Male and female | 5% yeast4% sucrose6% cornmeal | *Acetobacter pomorum* DmCS\_004*Acetobacter tropicalis* DmCS\_006*Lactobacillus brevis* DmCS\_003*Lactobacillus plantarum* DmCS\_001*Acetobacter pasteurianus* SKU1108 | 0.6% hypochlorite | 　 | No effect | Sannino *et al*. (2018) *mBio* 9(2): e00155-18 |
| 18 | Iatsenko *et al*. | *w1118*  | Male | 0.62% agar5.88% cornmeal5.88% inactivated dried yeast2.67 ml of a 10% solution of methyl- paraben in 85% ethanol6 ml fruit juice0.48 ml 99% propionic acid | *Lactobacillus plantarum* SD | 3% sodium hypochlorite |  | Increased | Iatsenko *et al*. (2018) *Immunity* 49(5), 929-942 |

† n.s. Statistically non-significance