### Model selection among and within genotypes:

**Table S2:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| model | K | AICc | delta | weight |
| **log\_gross\_speed ~ size + tube + 1** | **4** | **149.97** | **0** | **0.6** |
| log\_gross\_speed ~ size + tube + size:tube + 1 | 5 | 151.81 | 1.84 | 0.24 |
| log\_gross\_speed ~ tube + 1 | 3 | 152.6 | 2.63 | 0.16 |
| log\_gross\_speed ~ size + 1 | 3 | 171.74 | 21.77 | 0 |
| log\_gross\_speed ~ 1 | 2 | 172.74 | 22.77 | 0 |

**Table S3:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| model | K | AICc | delta | weight |
| **log\_gross\_speed ~ tube + 1** | **3** | **152.6** | **0** | **0.51** |
| log\_gross\_speed ~ shape + tube + shape:tube + 1 | 5 | 153.72 | 1.12 | 0.29 |
| log\_gross\_speed ~ shape + tube + 1 | 4 | 154.56 | 1.96 | 0.19 |
| log\_gross\_speed ~ 1 | 2 | 172.74 | 20.14 | 0 |
| log\_gross\_speed ~ shape + 1 | 3 | 173.86 | 21.26 | 0 |

**Table S4:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| model | K | AICc | delta | weight |
| log(FractalD - 1) ~ size + tube + 1 | 4 | 59.52 | 0 | 0.47 |
| log(FractalD - 1) ~ size + tube + size:tube + 1 | 5 | 60.46 | 0.94 | 0.29 |
| **log(FractalD - 1) ~ tube + 1** | **3** | **60.94** | **1.42** | **0.23** |
| log(FractalD - 1) ~ size + 1 | 3 | 67.46 | 7.94 | 0.01 |
| log(FractalD - 1) ~ 1 | 2 | 68.19 | 8.67 | 0.01 |

**Table S5:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| model | K | AICc | delta | weight |
| **log(FractalD - 1) ~ tube + 1** | **3** | **60.94** | **0** | **0.48** |
| log(FractalD - 1) ~ shape + tube + shape:tube + 1 | 5 | 62.22 | 1.28 | 0.26 |
| log(FractalD - 1) ~ shape + tube + 1 | 4 | 62.45 | 1.5 | 0.23 |
| log(FractalD - 1) ~ shape + 1 | 3 | 67.41 | 6.46 | 0.02 |
| log(FractalD - 1) ~ 1 | 2 | 68.19 | 7.25 | 0.01 |

### Model selection among genotypes:

**Table S6:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| model | K | AICc | delta | weight |
| **log\_gross\_speed ~ size + tube + 1** | **4** | **491.73** | **0** | **0.62** |
| log\_gross\_speed ~ size + tube + size:tube + 1 | 5 | 492.82 | 1.08 | 0.36 |
| log\_gross\_speed ~ tube + 1 | 3 | 498.72 | 6.99 | 0.02 |
| log\_gross\_speed ~ size + 1 | 3 | 547.25 | 55.51 | 0 |
| log\_gross\_speed ~ 1 | 2 | 551.35 | 59.62 | 0 |

**Table S7:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| model | K | AICc | delta | weight |
| **log\_gross\_speed ~ shape + tube + shape:tube + 1** | **5** | **491.49** | **0** | **0.95** |
| log\_gross\_speed ~ tube + 1 | 3 | 498.72 | 7.24 | 0.03 |
| log\_gross\_speed ~ shape + tube + 1 | 4 | 499.25 | 7.76 | 0.02 |
| log\_gross\_speed ~ 1 | 2 | 551.35 | 59.87 | 0 |
| log\_gross\_speed ~ shape + 1 | 3 | 552.36 | 60.87 | 0 |

**Table S8:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| model | K | AICc | delta | weight |
| fracD\_resp ~ size + tube + size:tube + 1 | 5 | 242.41 | 0 | 0.49 |
| **fracD\_resp ~ size + tube + 1** | **4** | **242.73** | **0.32** | **0.42** |
| fracD\_resp ~ tube + 1 | 3 | 245.63 | 3.23 | 0.1 |
| fracD\_resp ~ size + 1 | 3 | 262.7 | 20.3 | 0 |
| fracD\_resp ~ 1 | 2 | 264.65 | 22.24 | 0 |

**Table S9:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| model | K | AICc | delta | weight |
| **fracD\_resp ~ shape + tube + shape:tube + 1** | **5** | **241.62** | **0** | **0.84** |
| fracD\_resp ~ tube + 1 | 3 | 245.63 | 4.02 | 0.11 |
| fracD\_resp ~ shape + tube + 1 | 4 | 247.61 | 5.99 | 0.04 |
| fracD\_resp ~ shape + 1 | 3 | 264.08 | 22.46 | 0 |
| fracD\_resp ~ 1 | 2 | 264.65 | 23.03 | 0 |

### Model selection within genotypes:

**Table S10:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| model | K | AICc | delta | weight |
| **fractalD\_diff ~ 1** | **2** | **-439.6** | **0** | **0.74** |
| fractalD\_diff ~ size\_diff + 1 | 3 | -437.53 | 2.07 | 0.26 |

**Table S11:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| model | K | AICc | delta | weight |
| **gross\_speed\_diff ~ shape\_diff + 1** | **3** | **-73.84** | **0** | **0.98** |
| gross\_speed\_diff ~ 1 | 2 | -66.25 | 7.59 | 0.02 |

**Table S12:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| model | K | AICc | delta | weight |
| **fractalD\_diff ~ 1** | **2** | **-439.6** | **0** | **0.74** |
| fractalD\_diff ~ size\_diff + 1 | 3 | -437.53 | 2.07 | 0.26 |

**Table S13:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| model | K | AICc | delta | weight |
| **fractalD\_diff ~ 1** | **2** | **-439.6** | **0** | **0.74** |
| fractalD\_diff ~ shape\_diff + 1 | 3 | -437.51 | 2.09 | 0.26 |