**Gene expression data**

18 hpf

| Time | Treatment | hif1a/ef1a | igfbp-1/ef1a | epo/ef1a | vegf/ef1a |
|---|---|---|---|---|---|
| Treatment | C | 1.600 | 1.949 | 0.941 | 0.671 |
| Treatment | C | 0.754 | 1.051 | 0.915 | 0.808 |
| Treatment | C | 1.541 | 0.798 | 1.404 | 1.962 |
| Treatment | C | 0.905 | 0.880 | 1.200 | 0.760 |
| Treatment | C | 0.611 | 0.496 | 1.171 | 0.785 |
| Treatment | C | 0.590 | 0.825 | 0.372 | 1.015 |
| Treatment | N | 2.509 | 1.116 | 1.074 | 1.533 |
| Treatment | N | 1.488 | 1.666 | 0.855 | 0.776 |
| Treatment | N | 0.557 | 0.690 | 0.203 | 0.535 |
| Treatment | N | 1.030 | 1.096 | 0.566 | 1.545 |
| Treatment | H | 0.971 | 5.030 | 1.909 | 1.063 |
| Treatment | H | 0.485 | 4.619 | 2.203 | 0.733 |
| Treatment | H | 1.123 | 2.884 | 1.054 | 0.911 |
| Treatment | H | 0.714 | 2.705 | 0.865 | 1.556 |
| Treatment | H | 0.979 | 2.701 | 1.136 | 1.139 |
| Treatment | A | 0.527 | 1.666 | 0.453 | 0.549 |
| Treatment | A | 0.816 | 0.827 | 0.305 | 0.594 |
| Treatment | A | 0.932 | 0.874 | 0.407 | 0.847 |
| Treatment | A | 0.816 | 0.975 | 0.561 | 1.014 |
| Treatment | A | 0.593 | 1.199 | 0.353 | 0.783 |
| Recovery | C | 1.151 | 5.827 | 6.012 | 1.257 |
| Recovery | C | 1.622 | 4.131 | 3.828 | 1.757 |
| Recovery | C | 0.708 | 2.952 | 2.781 | 1.272 |
| Recovery | C | 0.771 | 3.378 | 4.476 | 2.047 |
| Recovery | C | 0.727 | 2.997 | 0.914 | 0.639 |
| Recovery | C | 1.049 | 3.168 | 1.946 | 2.019 |
| Recovery | N | 0.928 | 2.113 | 1.179 | 0.889 |
| Recovery | N | 0.762 | 3.136 | 1.033 | 1.357 |
| Recovery | N | 0.811 | 2.423 | 1.007 | 0.925 |
| Recovery | N | 1.125 | 3.543 | 3.603 | 1.138 |
| Recovery | N | 1.160 | 4.955 | 2.373 | 1.372 |
| Recovery | H | 1.157 | 1.975 | 0.741 | 0.464 |
| Recovery | H | 1.088 | 1.645 | 1.970 | 0.988 |
| Recovery | H | 0.704 | 1.051 | 1.568 | 0.553 |
| Recovery | H | 0.591 | 0.980 | 2.037 | 0.527 |
| Recovery | H | 0.783 | 2.053 | 1.793 | 2.082 |
| Recovery | A | 1.671 | 1.091 | 5.828 | 1.911 |
| Recovery | A | 1.249 | 2.555 | 3.680 | 1.113 |
| Recovery | A | 1.283 | 1.651 | 3.272 | 0.770 |
| Recovery | A | 1.371 | 1.243 | 0.497 | 0.847 |

**Gene expression data**

24 hpf

| Time | Treatment | hif1a/ef1a | igfbp-1/ef1a | epo/ef1a | vegf/ef1a |
|---|---|---|---|---|---|
| Treatment | C | 0.167 | 0.997 | 0.959 | 1.247 |
| Treatment | C | 0.212 | 0.969 | 0.980 | 1.462 |
| Treatment | C | 0.208 | 0.981 | 1.106 | 2.132 |
| Treatment | C | 0.124 | 0.880 | 1.200 | 1.409 |
| Treatment | C | 0.116 | 0.813 | 1.091 | 1.052 |
| Treatment | C | 0.158 | 1.359 | 0.664 | 0.988 |
| Treatment | N | 0.130 | 1.257 | 0.708 | 0.757 |
| Treatment | N | 0.115 | 1.195 | 0.980 | 1.247 |
| Treatment | N | 0.120 | 0.996 | 0.331 | 1.080 |
| Treatment | N | 0.118 | 1.629 | 0.549 | 1.242 |
| Treatment | N | 0.185 | 1.940 | 0.588 | 1.154 |
| Treatment | N | 0.219 | 1.246 | 0.713 | 1.277 |
| Treatment | H | 0.136 | 5.947 | 5.462 | 0.532 |
| Treatment | H | 0.188 | 4.957 | 4.674 | 1.161 |
| Treatment | H | 0.195 | 4.109 | 4.805 | 0.823 |
| Treatment | H | 0.279 | 4.735 | 1.117 | 1.293 |
| Treatment | H | 0.252 | 4.550 | 1.093 | 2.032 |
| Treatment | H | 0.222 | 3.602 | 9.507 | 0.886 |
| Treatment | A | 0.160 | 2.674 | 1.508 | 1.178 |
| Treatment | A | 0.138 | 1.720 | 0.636 | 1.910 |
| Treatment | A | 0.259 | 1.765 | 0.706 | - |
| Treatment | A | 0.333 | 1.393 | 1.456 | 2.196 |
| Treatment | A | 0.180 | 1.188 | 1.363 | 2.155 |
| Treatment | A | 0.208 | 0.748 | 0.534 | 1.482 |
| Recovery | C | 0.130 | 1.257 | 0.708 | 0.757 |
| Recovery | C | 0.115 | 1.195 | 0.980 | 1.247 |
| Recovery | C | 0.120 | 0.996 | 0.331 | 1.080 |
| Recovery | C | 0.118 | 1.629 | 0.549 | 1.242 |
| Recovery | C | 0.185 | 1.940 | 0.588 | 1.154 |
| Recovery | C | 0.219 | 1.246 | 0.713 | 1.277 |
| Recovery | N | 0.147 | 1.209 | 0.925 | 1.125 |
| Recovery | N | 0.412 | 3.963 | 1.762 | 2.153 |
| Recovery | N | 0.228 | 1.419 | 1.098 | 1.260 |
| Recovery | N | 0.132 | 1.373 | 0.996 | 0.917 |
| Recovery | N | 0.156 | 1.117 | 0.529 | 1.189 |
| Recovery | N | 0.368 | 2.840 | 1.016 | 2.151 |
| Recovery | H | 0.140 | 1.389 | 0.400 | 0.441 |
| Recovery | H | 0.141 | 1.272 | 0.941 | 0.336 |
| Recovery | H | 0.194 | 1.577 | 0.902 | 1.237 |
| Recovery | H | 0.218 | 1.087 | 1.117 | 1.905 |
| Recovery | H | 0.237 | 2.357 | 1.093 | 0.689 |
| Recovery | H | 0.207 | 1.422 | 1.266 | 0.793 |
| Recovery | A | 0.222 | 2.150 | 0.745 | 1.236 |
| Recovery | A | 0.197 | 1.755 | 1.449 | 0.908 |
| Recovery | A | 0.268 | 2.191 | 1.460 | 2.266 |
| Recovery | A | 0.202 | 3.512 | 1.000 | 1.494 |
| Recovery | A | 0.225 | 2.737 | 1.461 | 0.929 |
| Recovery | A | 0.142 | 2.348 | 1.224 | 0.950 |

**Gene expression data**

36 hpf

| Time | Treatment | hif1a/ef1a | igfbp-1/ef1a | epo/ef1a | vegf/ef1a |
|---|---|---|---|---|---|
| Treatment | C | 0.026 | 0.012 | 0.025 | 0.158 |
| Treatment | C | 0.017 | 0.018 | 0.029 | 0.170 |
| Treatment | C | 0.035 | 0.027 | 0.015 | 0.202 |
| Treatment | C | 0.027 | 0.024 | 0.013 | 0.152 |
| Treatment | C | 0.049 | 0.012 | - | 0.159 |
| Treatment | C | 0.029 | 0.010 | - | 0.136 |
| Treatment | N | 0.042 | 0.018 | 0.016 | 0.087 |
| Treatment | N | 0.032 | 0.034 | 0.028 | 0.201 |
| Treatment | N | 0.026 | 0.017 | 0.017 | 0.243 |
| Treatment | N | 0.020 | 0.015 | 0.016 | 0.221 |
| Treatment | N | 0.020 | 0.013 | 0.022 | 0.150 |
| Treatment | N | 0.035 | 0.018 | 0.018 | 0.122 |
| Treatment | H | 0.071 | 0.103 | 0.064 | 0.271 |
| Treatment | H | 0.024 | 0.039 | 0.031 | 0.210 |
| Treatment | H | 0.061 | 0.064 | 0.032 | 0.459 |
| Treatment | H | 0.024 | 0.035 | 0.023 | 0.266 |
| Treatment | H | 0.020 | 0.073 | 0.031 | 0.309 |
| Treatment | H | 0.014 | 0.042 | 0.023 | 0.289 |
| Treatment | A | 0.029 | 0.051 | 0.008 | 0.437 |
| Treatment | A | 0.018 | 0.059 | 0.020 | 0.208 |
| Treatment | A | 0.026 | 0.032 | 0.014 | 0.258 |
| Treatment | A | 0.018 | - | 0.011 | 0.204 |
| Treatment | A | 0.024 | 0.024 | 0.008 | 0.323 |
| Treatment | A | 0.030 | - | 0.009 | 0.200 |
| Recovery | C | 0.021 | 0.026 | 0.039 | 0.188 |
| Recovery | C | 0.027 | 0.019 | 0.051 | 0.212 |
| Recovery | C | 0.011 | 0.012 | 0.024 | 0.194 |
| Recovery | C | 0.021 | 0.023 | - | - |
| Recovery | C | 0.010 | 0.026 | 0.022 | 0.203 |
| Recovery | N | 0.048 | 0.014 | 0.024 | 0.219 |
| Recovery | N | 0.028 | 0.010 | 0.019 | 0.096 |
| Recovery | N | 0.022 | 0.010 | 0.025 | 0.255 |
| Recovery | N | 0.013 | 0.009 | 0.004 | 0.107 |
| Recovery | N | 0.021 | 0.013 | 0.028 | 0.120 |
| Recovery | N | 0.012 | 0.010 | - | 0.078 |
| Recovery | H | 0.027 | 0.026 | 0.044 | 0.125 |
| Recovery | H | 0.039 | 0.021 | 0.038 | 0.165 |
| Recovery | H | 0.012 | 0.011 | 0.009 | 0.223 |
| Recovery | H | 0.017 | 0.012 | 0.021 | 0.237 |
| Recovery | H | 0.039 | 0.015 | 0.005 | 0.116 |
| Recovery | A | 0.010 | 0.020 | 0.026 | 0.099 |
| Recovery | A | 0.022 | 0.009 | - | 0.138 |
| Recovery | A | 0.048 | 0.018 | 0.014 | 0.198 |
| Recovery | A | 0.032 | 0.018 | 0.018 | 0.208 |
| Recovery | A | 0.024 | 0.026 | 0.012 | 0.160 |
| Recovery | A | 0.012 | 0.012 | 0.033 | 0.099 |

**Western blot HIF-1a data**

| Treatment | 18 hpf | 24 hpf | 36 hpf |
|---|---|---|---|
| C | 0.72 | 0.89 | 0.41 |
| C | 0.45 | 0.83 | 0.51 |
| C | 0.47 | 0.51 | 0.34 |
| C | 0.49 | 0.83 | 0.56 |
| C | - | 0.58 | 0.51 |
| C | - | - | 0.43 |
| N | 0.41 | 0.74 | 0.41 |
| N | 0.42 | 0.91 | 0.51 |
| N | 0.43 | 0.65 | 0.34 |
| N | 0.58 | 0.43 | 0.56 |
| N | 0.56 | 0.59 | 0.51 |
| N | - | 0.60 | 0.43 |
| H | 0.56 | 1.00 | 1.01 |
| H | 0.52 | 1.08 | 0.96 |
| H | 0.53 | 1.25 | 0.83 |
| H | 0.55 | 1.14 | 0.81 |
| H | 0.71 | 0.90 | 1.00 |
| H | 1.00 | 1.24 | - |
| A | 0.86 | 0.89 | 1.40 |
| A | 0.80 | 1.25 | 1.63 |
| A | 0.28 | 1.22 | 1.26 |
| A | 1.04 | 1.64 | 1.34 |
| A | 0.86 | 1.86 | 1.48 |
| A | 1.34 | 1.08 | 1.52 |

**18 hpf - Larvae**

Metabolic Rate

| Trial | Normoxia | Hypoxia | Anoxia |
|---|---|---|---|
| 1 | 14.71 | 6.78 | 5.17 |
| 2 | 15.01 | 7.38 | 6.12 |
| 3 | 9.05 | 16.17 | 8.62 |
| 4 | 8.08 | 7.94 | 17.91 |
| 5 | 14.17 | 4.27 | 13.83 |
| 6 | 7.39 | 7.18 | 5.72 |

Regulation Index

| Trial | Normoxia | Hypoxia | Anoxia |
|---|---|---|---|
| 1 | -0.13 | 0.63 | 0.64 |
| 2 | 0.28 | 0.28 | 0.52 |
| 3 | 1.32 | 0.36 | 0.46 |
| 4 | 0.25 | 0.48 | 0.33 |
| 5 | 0.29 | 0.41 | 0.66 |
| 6 | -0.30 | 0.47 | 0.52 |

O2 uptake limit

| Trial | Normoxia | Hypoxia | Anoxia |
|---|---|---|---|
| 1 | 9.87 | 3.50 | 8.96 |
| 2 | 5.97 | 11.99 | 3.19 |
| 3 | 7.19 | 4.88 | 6.75 |
| 4 | 11.05 | 4.15 | 5.95 |
| 5 | 8.81 | 4.16 | 5.80 |
| 6 | 8.23 | 8.11 | 6.42 |

**24 hpf - Larvae**

Metabolic Rate

| Trial | Normoxia | Hypoxia | Anoxia |
|---|---|---|---|
| 1 | 10.90 | 13.22 | 10.38 |
| 2 | 12.81 | 16.50 | 24.46 |
| 3 | 14.27 | 24.95 | 10.29 |
| 4 | 12.05 | 19.48 | 16.01 |
| 5 | 12.38 | 13.55 | 7.44 |
| 6 | 10.21 | 13.51 | 25.48 |
| 7 | 10.99 | 11.08 | 10.86 |
| 8 | 14.34 | 3.73 | 15.05 |
| 9 | 14.09 | 11.11 | 7.75 |

Regulation Index

| Trial | Normoxia | Hypoxia | Anoxia |
|---|---|---|---|
| 1 | 0.58 | 1.14 | 0.01 |
| 2 | 0.41 | 0.35 | 0.28 |
| 3 | -0.05 | 0.57 | 0.53 |
| 4 | 0.61 | 0.28 | 0.15 |
| 5 | 0.43 | 0.46 | 0.32 |
| 6 | | 0.41 | 0.38 |

O2 uptake limit

| Trial | Normoxia | Hypoxia | Anoxia |
|---|---|---|---|
| 1 | 8.13 | 9.06 | 13.74 |
| 2 | 10.21 | 9.07 | 20.48 |
| 3 | 18.04 | 7.89 | 8.64 |
| 4 | 7.27 | 10.49 | 6.27 |
| 5 | 8.03 | 4.64 | 9.89 |
| 6 | | 4.05 | 9.33 |

**36 hpf - Larvae**

Metabolic Rate

| Trial | Normoxia | Hypoxia | Anoxia |
|---|---|---|---|
| 1 | 12.14 | 16.65 | 14.17 |
| 2 | 12.30 | 10.57 | 4.80 |
| 3 | 18.36 | 7.11 | 11.59 |
| 4 | 18.96 | 14.85 | 9.60 |
| 5 | 14.07 | 12.50 | 13.63 |
| 6 | 9.23 | 7.32 | 6.58 |

Regulation Index

| Trial | Normoxia | Hypoxia | Anoxia |
|---|---|---|---|
| 1 | 0.20 | 0.46 | 0.35 |
| 2 | 0.32 | 0.23 | 0.90 |
| 3 | -0.08 | 0.35 | 0.30 |
| 4 | 0.28 | 0.28 | 0.50 |
| 5 | 0.17 | 0.45 | 0.36 |
| 6 | 0.22 | | 0.45 |

O2 uptake limit

| Trial | Normoxia | Hypoxia | Anoxia |
|---|---|---|---|
| 1 | 11.77 | 4.60 | 6.44 |
| 2 | 9.94 | 5.77 | 8.42 |
| 3 | 14.09 | 7.18 | 7.89 |
| 4 | 12.22 | 9.27 | 7.72 |
| 5 | 12.11 | 6.70 | 8.19 |
| 6 | 11.90 | | 9.39 |

**18 hpf Adult metabolic rates**

| Treatment | Normoxia | | Hypoxia | | Anoxia | |
|---|---|---|---|---|---|---|
| Sex | M | F | M | F | M | F |
| | 9.13 | 16.70 | 14.95 | 16.46 | 14.90 | 15.20 |
| | 16.97 | 11.22 | 11.64 | 13.55 | 17.80 | 11.41 |
| | 20.49 | 9.54 | 16.28 | 9.39 | 16.84 | 19.26 |
| | 15.09 | 20.62 | 18.50 | 20.14 | 16.44 | 11.79 |

**18 hpf Adult Pcrit**

| Treatment | Normoxia | | Hypoxia | | Anoxia | |
|---|---|---|---|---|---|---|
| Sex | M | F | M | F | M | F |
| | 32.54 | 23.69 | 39.95 | 46.49 | 40.06 | 41.95 |
| | 26.21 | 41.19 | 35.80 | 39.05 | 33.02 | 41.92 |
| | 32.61 | 43.61 | 32.74 | 28.17 | 34.18 | 30.40 |
| | 39.56 | 42.42 | 29.64 | 43.37 | 32.70 | 35.11 |

**24 hpf Adult metabolic rates**

| Treatment | Normoxia | | Hypoxia | | Anoxia | |
|---|---|---|---|---|---|---|
| Sex | M | F | M | F | M | F |
| | 10.95 | 12.24 | 14.99 | 13.39 | 13.46 | 9.87 |
| | 11.88 | 11.45 | 13.08 | 12.76 | 13.99 | 10.44 |
| | 10.41 | 9.91 | 12.64 | 14.89 | 11.95 | 9.64 |
| | 14.23 | 15.10 | 15.01 | 16.73 | 16.86 | 17.57 |

**24 hpf Adult Pcrit**

| Treatment | Normoxia | | Hypoxia | | Anoxia | |
|---|---|---|---|---|---|---|
| Sex | M | F | M | F | M | F |
| | 13.50 | 27.35 | 23.33 | 25.10 | 18.06 | 44.42 |
| | 16.16 | 31.03 | 21.80 | 18.19 | 17.28 | 24.69 |
| | 13.50 | 26.10 | 23.16 | 44.17 | 26.87 | 25.11 |
| | 21.48 | 31.02 | 32.89 | 33.66 | 25.00 | 38.73 |

**36 hpf Adult metabolic rates**

| Treatment | Normoxia | | Hypoxia | | Anoxia | |
|---|---|---|---|---|---|---|
| Sex | M | F | M | F | M | F |
| | - | 16.53 | 17.90 | 10.93 | 14.58 | 10.27 |
| | 15.16 | 12.70 | 26.64 | 12.80 | 14.01 | 16.64 |
| | 17.79 | 14.62 | 13.30 | 18.28 | 15.48 | 13.15 |
| | 26.24 | 8.59 | 13.13 | 22.00 | 28.10 | 14.63 |

**36 hpf Adult Pcrit**

| Treatment | Normoxia | | Hypoxia | | Anoxia | |
|---|---|---|---|---|---|---|
| Sex | M | F | M | F | M | F |
| | 27.45 | 32.09 | 25.00 | 37.67 | 36.42 | 32.85 |
| | 30.65 | 51.15 | 31.48 | 45.46 | 43.54 | 52.32 |
| | 42.21 | 58.15 | 34.29 | 54.57 | 32.63 | 45.00 |
| | 44.29 | 44.25 | 40.51 | 43.81 | 45.00 | 39.06 |