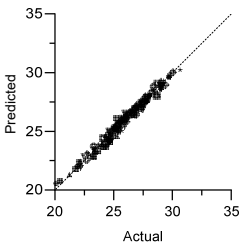


A

Test for normal distribution of CD male BW datasets

D'Agostino & Pearson Test	CD 1	CD 3	CD 5	CD 8	CD 10	CD 12	CD 15	CD 17	CD 19	CD 22	CD 24	CD 26
K2	0.8	1.4	0.7	1.0	0.9	0.7	0.3	0.9	1.7	0.3	0.8	0.7
P value	0.7	0.5	0.7	0.6	0.7	0.7	0.8	0.6	0.4	0.9	0.7	0.7
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P value summary	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

QQ Plot

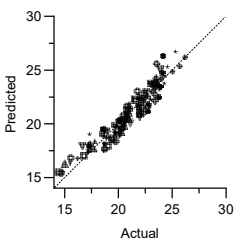


B

Test for normal distribution of KD male BW datasets

D'Agostino & Pearson Test	KD 1	KD 3	KD 5	KD 8	KD 10	KD 12	KD 15	KD 17	KD 19	KD 22	KD 24	KD 26
K2	0.2	4.2	2.4	3.3	2.4	4.4	2.8	4.5	7.1	3.2	2.9	9.4
P value	0.9	0.1	0.3	0.2	0.3	0.1	0.2	0.1	0.03	0.2	0.2	0.01
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No
P value summary	ns	ns	ns	ns	ns	ns	ns	ns	*	ns	ns	**
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

QQ Plot



Supplemental Figure 1. Normality tests for Figure 4A datasets.

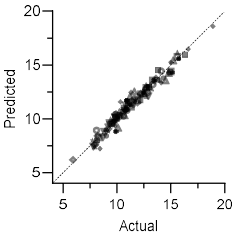
A), and B) (right panels) Tables of the statistical normality test D'Agostino-Pearson omnibus performed on datasets derived from Figure 4A. (Right panels) Quantile-quantile (QQ) normality plots resulting from this normality test.

A

Test for normal distribution of CD male glycemia datasets

D'Agostino & Pearson Test	CD 1	CD 3	CD 5	CD 8	CD 10	CD 12	CD 15	CD 17	CD 19	CD 22	CD 24	CD 26
K2	1.0	0.0	1.7	0.1	1.0	0.4	0.1	2.5	4.1	0.1	1.2	0.4
P value	0.6	>0.99	0.4	0.9	0.6	0.8	1.0	0.3	0.1	1.0	0.5	0.8
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P value summary	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

QQ Plot

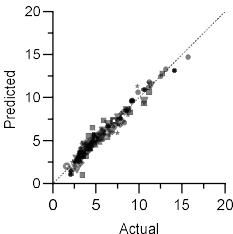


B

Test for normal distribution of KD male glycemia datasets

D'Agostino & Pearson Test	KD 1	KD 3	KD 5	KD 8	KD 10	KD 12	KD 15	KD 17	KD 19	KD 22	KD 24	KD 26
K2	2.4	3.0	2.3	2.7	2.3	1.9	5.1	3.4	0.8	1.0	0.6	1.9
P value	0.3	0.2	0.3	0.3	0.3	0.4	0.1	0.2	0.7	0.6	0.7	0.4
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P value summary	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

QQ Plot



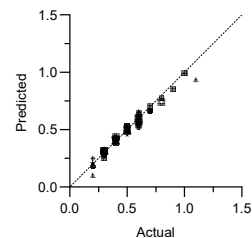
Supplemental Figure 2. Normality tests for Figure 4C datasets.

A), and B) (right panels) Tables of the statistical normality test D'Agostino-Pearson omnibus performed on datasets derived from Figure 4C. (Right panels) QQ normality plots resulting from this normality test.

A

Test for normal distribution of CD male β -HB datasets

QQ Plot

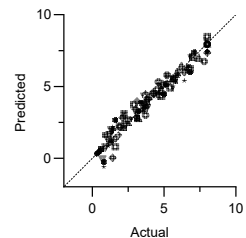


D'Agostino & Pearson Test	CD 1	CD 3	CD 5	CD 8	CD 10	CD 12	CD 15	CD 17	CD 19	CD 22	CD 24	CD 26
K2	0.2	0.7	5.9	3.1	3.0	8.8	1.4	0.2	10.4	2.3	0.6	3.2
P value	0.9	0.7	0.1	0.2	0.2	0.0	0.5	0.9	0.01	0.3	0.8	0.2
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes
P value summary	ns	ns	ns	ns	ns	*	ns	ns	**	ns	ns	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

B

Test for normal distribution of KD male β -HB datasets

QQ Plot



D'Agostino & Pearson Test	KD 1	KD 3	KD 5	KD 8	KD 10	KD 12	KD 15	KD 17	KD 19	KD 22	KD 24	KD 26
K2	0.6	0.3	1.1	2.2	2.9	5.7	2.5	0.5	1.4	1.8	1.9	5.3
P value	0.8	0.9	0.6	0.3	0.2	0.1	0.3	0.8	0.5	0.4	0.4	0.1
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P value summary	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

Supplemental Figure 3. Normality tests for Figure 4E datasets.

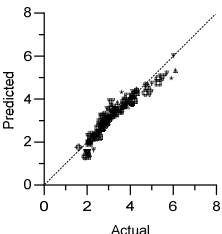
A), and B) (right panels) Tables of the statistical normality test D'Agostino-Pearson omnibus performed on datasets derived from Figure 4E. (Right panels) QQ normality plots resulting from this normality test.

A

Test for normal distribution of CD male lactate datasets

D'Agostino & Pearson Test	CD 1	CD 3	CD 5	CD 8	CD 10	CD 12	CD 15	CD 17	CD 19	CD 22	CD 24	CD 26
K2	1.2	1.7	6.5	1.6	3.0	2.6	3.7	0.7	4.8	0.8	5.1	12.9
P value	0.5	0.4	0.04	0.5	0.2	0.3	0.2	0.7	0.1	0.7	0.1	0.002
Passed normality test (alpha=0.05)?	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
P value summary	ns	ns	*	ns	ns	ns	ns	ns	ns	ns	ns	**
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

QQ Plot

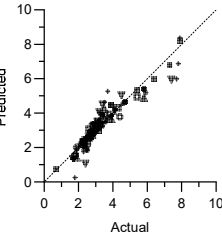


B

Test for normal distribution of KD male lactate datasets

D'Agostino & Pearson Test	KD 1	KD 3	KD 5	KD 8	KD 10	KD 12	KD 15	KD 17	KD 19	KD 22	KD 24	KD 26
K2	9.1	0.1	1.0	1.0	2.8	11.1	2.5	13.7	18.0	0.3	1.4	3.6
P value	0.01	0.9	0.6	0.6	0.3	0.004	0.3	0.001	<0.001	0.9	0.5	0.2
Passed normality test (alpha=0.05)?	No	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes
P value summary	*	ns	ns	ns	ns	**	ns	**	***	ns	ns	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

QQ Plot



Supplemental Figure 4. Normality tests for Figure 4G datasets.

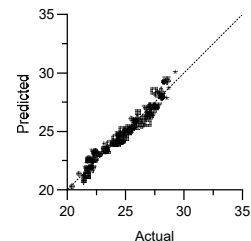
A), and B) (right panels) Tables of the statistical normality test D'Agostino-Pearson omnibus performed on datasets derived from Figure 4G. (Right panels) QQ normality plots resulting from this normality test.

A

Test for normal distribution of CD male BW datasets

QQ Plot

D'Agostino & Pearson Test	CD 1	CD 3	CD 5	CD 8	CD 10	CD 12	CD 15	CD 17	CD 19	CD 22	CD 24	CD 26
K2	1.3	3.5	1.0	3.4	0.8	1.7	2.0	1.0	1.4	0.9	0.9	0.7
P value	0.5	0.2	0.6	0.2	0.7	0.4	0.4	0.6	0.5	0.6	0.6	0.7
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P value summary	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

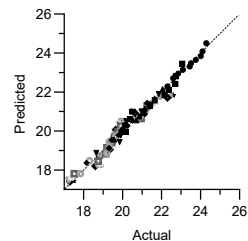


B

Test for normal distribution of KD male BW datasets

QQ Plot

D'Agostino & Pearson Test	KD 1	KD 3	KD 5	KD 8	KD 10	KD 12	KD 15	KD 17	KD 19	KD 22	KD 24	KD 26
K2	1.0	2.3	0.3	0.3	0.2	0.0	0.7	1.1	0.6	2.7	3.3	4.6
P value	0.6	0.3	0.9	0.9	0.9	1.0	0.7	0.6	0.7	0.3	0.2	0.1
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P value summary	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

**Supplemental Figure 5. Normality tests for Figure 5A male datasets.**

A), and B) (right panels) Tables of the statistical normality test D'Agostino-Pearson omnibus performed on male datasets derived from Figure 5A.

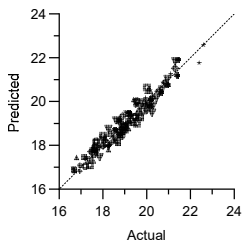
(Right panels) QQ normality plots resulting from this normality test.

A

Test for normal distribution of CD female BW datasets

QQ Plot

D'Agostino & Pearson Test	CD 1	CD 3	CD 5	CD 8	CD 10	CD 12	CD 15	CD 17	CD 19	CD 22	CD 24	CD 26
K2	1.1	2.0	2.9	2.1	1.6	3.9	5.3	2.4	4.2	1.0	2.4	1.1
P value	0.6	0.4	0.2	0.4	0.4	0.1	0.1	0.3	0.1	0.6	0.3	0.6
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P value summary	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

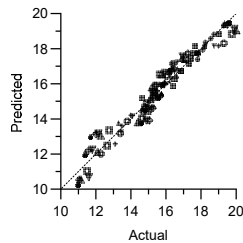


B

Test for normal distribution of KD female BW datasets

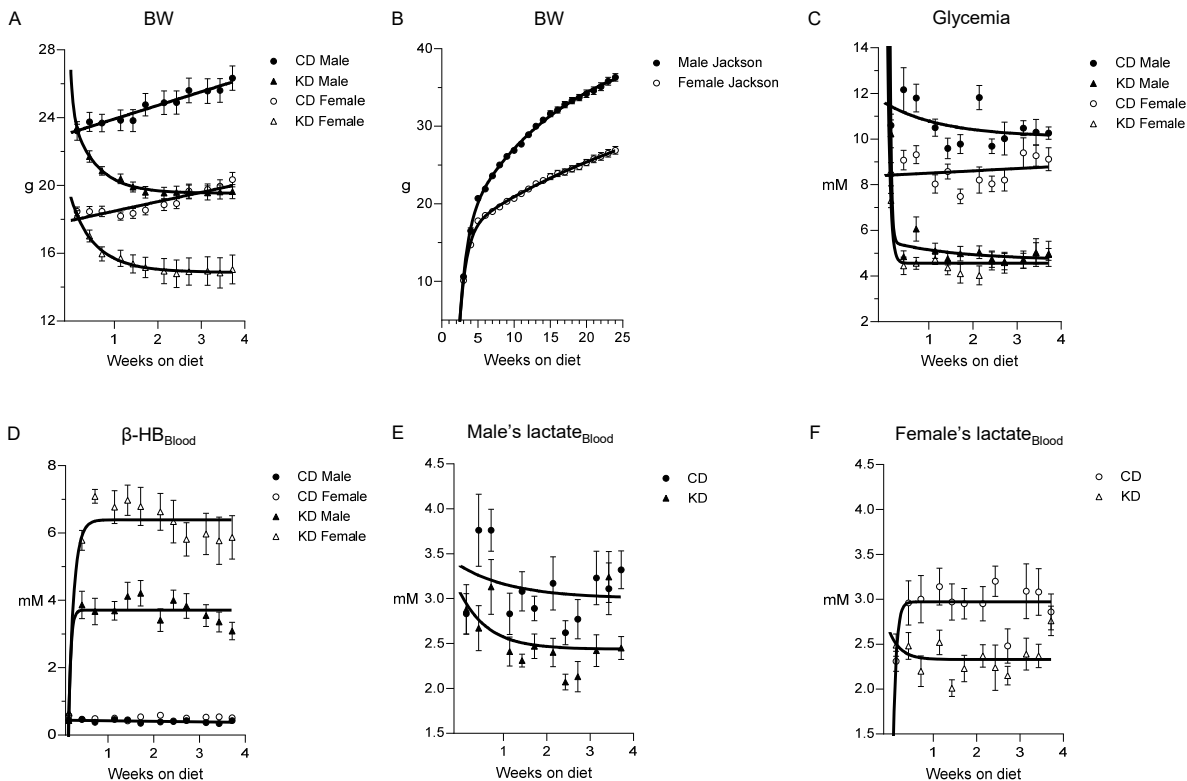
QQ Plot

D'Agostino & Pearson Test	KD 1	KD 3	KD 5	KD 8	KD 10	KD 12	KD 15	KD 17	KD 19	KD 22	KD 24	KD 26
K2	3.4	3.2	1.6	1.6	2.6	3.3	1.4	1.2	0.5	0.1	0.2	0.4
P value	0.2	0.2	0.5	0.5	0.3	0.2	0.5	0.6	0.8	1.0	0.9	0.8
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P value summary	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10



Supplemental Figure 6. Normality tests for Figure 5A female datasets.

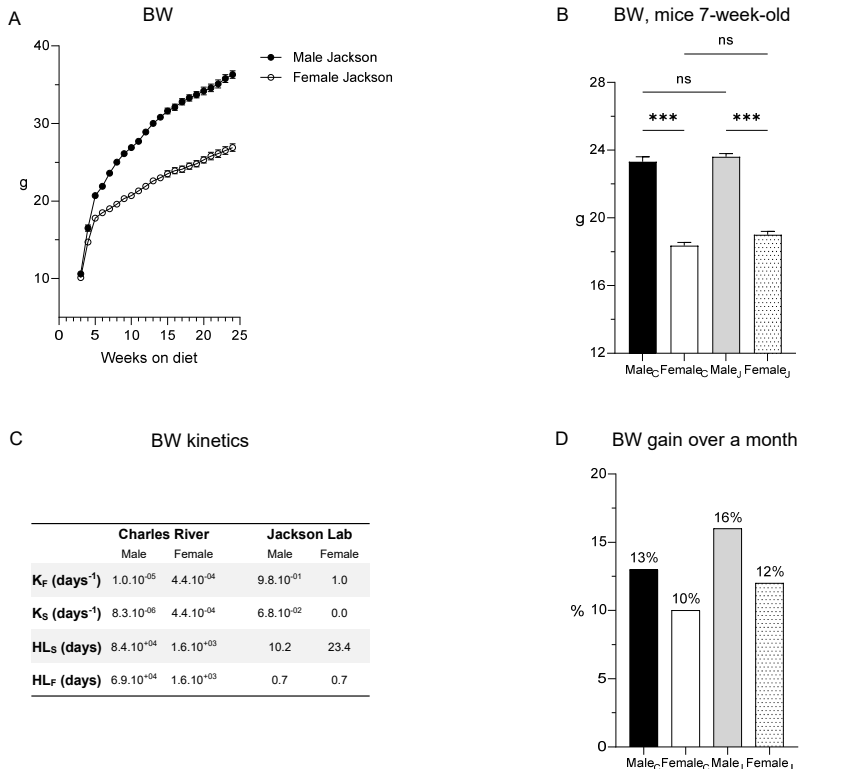
A), and B) (right panels) Tables of the statistical normality test D'Agostino-Pearson omnibus performed on female datasets derived from Figure 5A. (Right panels) QQ normality plots resulting from this normality test.



Supplemental Figure 7. Nonlinear regression analysis of metabolic ketosis biomarkers.

Two-phase models (black lines) were applied to assess kinetic changes over weeks in various metabolic parameters in male (black symbols) and female (white symbols) mice fed Bio-Serv's CD (circle) or KD (triangle). Two-phase decay models were used to analyze the BW (g, A), glycemia (mM, C), and blood lactate of males (mM, E), and females (mM, F). Two-phase association models were performed for the blood concentration of β -HB (mM, D), and the BW (g) of Jackson Lab's male and female mice fed a CD (B). Simple linear regression analysis was applied to β -HB CD data (mM, D).

N = 10 mice per Bio-Serv's dietary group, and N =40 per gender for Jackson Lab mice. Data are presented as Mean $\pm$ SEM.



Supplemental Figure 8. Comparative BW analysis between C57BL/6J mice from Charles River and Jackson Lab.

A) BW (g) of Jackson's male (black circle) and female (white circle) mice monitored over 25 weeks.

B) BW (g) at 7 weeks of age, comparing Charles River mice (males: black bar, Male_C; females: white bar, Female_C) with Jackson Lab mice (males: gray bar, Male_J; females: dotted bar, Female_J).

C) Kinetics parameters characterizing BW changes over 25 weeks, including fast and slow decay constants (K_F, K_S, days⁻¹), and half-lives fast and slow (HL_F, HL_S, days).

D) BW gain (%) over a month, from 8 to 12 weeks of age, in Charles River mice (males: black bar, females: white bar) and Jackson Lab mice (males: gray bar, females: dotted bar).

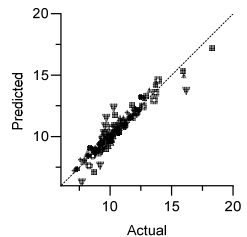
N = 10 mice per gender for Charles River mice (study cohorts), and N=40 per gender for Jackson Lab mice. All animals were maintained on a CD, with Charles River mice specifically fed Bio-Serv's CD. Data are presented as Mean ± SEM; *** p < 0.001, not significant (ns), p > 0.05 (Table S1).

A

Test for normal distribution of CD male glycemia datasets

D'Agostino & Pearson Test	CD 1	CD 3	CD 5	CD 8	CD 10	CD 12	CD 15	CD 17	CD 19	CD 22	CD 24	CD 26
K2	0.5	2.3	3.5	0.6	0.7	1.6	1.9	1.8	22.3	0.6	1.2	0.5
P value	0.8	0.3	0.2	0.8	0.7	0.4	0.4	0.4	<0.001	0.8	0.6	0.8
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
P value summary	ns	ns	ns	ns	ns	ns	ns	ns	***	ns	ns	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

QQ Plot

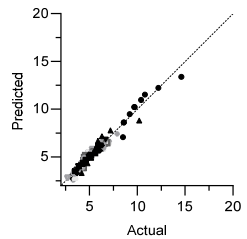


B

Test for normal distribution of KD male glycemia datasets

D'Agostino & Pearson Test	KD 1	KD 3	KD 5	KD 8	KD 10	KD 12	KD 15	KD 17	KD 19	KD 22	KD 24	KD 26
K2	6.7	0.7	12.4	1.0	1.0	0.5	2.4	3.7	3.1	0.7	1.6	3.1
P value	0.0	0.7	0.0	0.6	0.6	0.8	0.3	0.2	0.2	0.7	0.4	0.2
Passed normality test (alpha=0.05)?	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P value summary	*	ns	**	ns	ns	ns	ns	ns	ns	ns	ns	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

QQ Plot

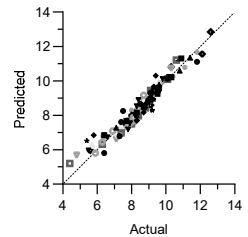


Supplemental Figure 9. Normality tests for Figure 6A male datasets.

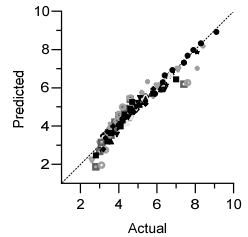
A), and B) (right panels) Tables of the statistical normality test D'Agostino-Pearson omnibus performed on male datasets derived from Figure 6A. (Right panels) QQ normality plots resulting from this normality test.

A**Test for normal distribution of CD female glycemia datasets****QQ Plot**

D'Agostino & Pearson Test	CD 1	CD 3	CD 5	CD 8	CD 10	CD 12	CD 15	CD 17	CD 19	CD 22	CD 24	CD 26
K2	2.4	1.2	0.2	1.6	19.1	2.7	2.7	3.7	4.5	0.2	0.9	8.8
P value	0.3	0.5	0.9	0.4	<0.001	0.3	0.3	0.2	0.1	0.9	0.6	0.01
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No
P value summary	ns	ns	ns	ns	***	ns	ns	ns	ns	ns	ns	*
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

**B****Test for normal distribution of KD female glycemia datasets****QQ Plot**

D'Agostino & Pearson Test	KD 1	KD 3	KD 5	KD 8	KD 10	KD 12	KD 15	KD 17	KD 19	KD 22	KD 24	KD 26
K2	0.2	3.2	1.5	7.2	2.3	19.8	15.3	0.3	0.5	0.2	1.7	1.0
P value	0.9	0.2	0.5	0.0	0.3	<0.001	<0.001	0.9	0.8	0.9	0.4	0.6
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes
P value summary	ns	ns	ns	*	ns	***	***	ns	ns	ns	ns	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

**Supplemental Figure 10. Normality tests for Figure 6A female datasets.**

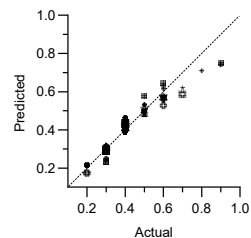
A), and B) (right panels) Tables of the statistical normality test D'Agostino-Pearson omnibus performed on female datasets derived from Figure 6A. (Right panels) QQ normality plots resulting from this normality test.

A

Test for normal distribution of CD male blood β -HB datasets

QQ Plot

D'Agostino & Pearson Test	CD 1	CD 3	CD 5	CD 8	CD 10	CD 12	CD 15	CD 17	CD 19	CD 22	CD 24	CD 26
K2	13.9	12.6	1.1	3.9	4.9	6.8	16.2	1.2	1.0	1.5	0.2	7.3
P value	<0.001	0.0	0.6	0.1	0.1	0.0	<0.001	0.6	0.6	0.5	0.9	0.0
Passed normality test (alpha=0.05)?	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No
P value summary	***	**	ns	ns	ns	*	***	ns	ns	ns	ns	*
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

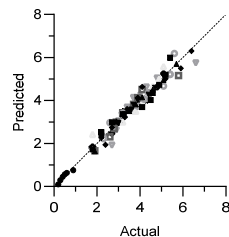


B

Test for normal distribution of KD male blood β -HB datasets

QQ Plot

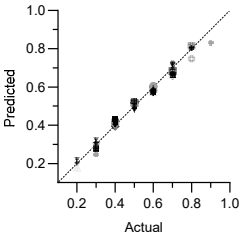
D'Agostino & Pearson Test	KD 1	KD 3	KD 5	KD 8	KD 10	KD 12	KD 15	KD 17	KD 19	KD 22	KD 24	KD 26
K2	8.2	1.9	0.4	0.0	0.9	1.5	5.2	6.9	9.1	0.2	0.2	1.2
P value	0.0	0.4	0.8	>0.99	0.6	0.5	0.1	0.0	0.0	0.9	0.9	0.5
Passed normality test (alpha=0.05)?	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
P value summary	*	ns	ns	ns	ns	ns	ns	*	*	ns	ns	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

**Supplemental Figure 11. Normality tests for Figure 7A male datasets.**

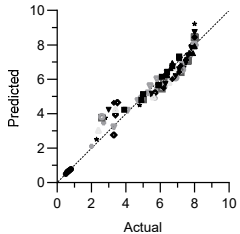
A), and B) (right panels) Tables of the statistical normality test D'Agostino-Pearson omnibus performed on male datasets derived from Figure 7A. (Right panels) QQ normality plots resulting from this normality test.

A**Test for normal distribution of CD female blood β -HB datasets**

D'Agostino & Pearson Test	CD 1	CD 3	CD 5	CD 8	CD 10	CD 12	CD 15	CD 17	CD 19	CD 22	CD 24	CD 26
K2	1.2	1.5	1.1	0.9	0.2	1.5	0.9	1.0	0.5	1.0	1.5	1.1
P value	0.6	0.5	0.6	0.6	0.9	0.5	0.6	0.6	0.8	0.6	0.5	0.6
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P value summary	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

QQ Plot**B****Test for normal distribution of KD female blood β -HB datasets**

D'Agostino & Pearson Test	KD 1	KD 3	KD 5	KD 8	KD 10	KD 12	KD 15	KD 17	KD 19	KD 22	KD 24	KD 26
K2	0.15	1.45	2.54	11.39	16.25	8.69	7.76	3.14	0.54	2.50	1.44	1.52
P value	0.93	0.48	0.28	0.003	<0.001	0.01	0.02	0.21	0.76	0.29	0.49	0.47
Passed normality test (alpha=0.05)?	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes
P value summary	ns	ns	ns	**	***	*	*	ns	ns	ns	ns	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

QQ Plot**Supplemental Figure 12. Normality tests for Figure 7A female datasets.**

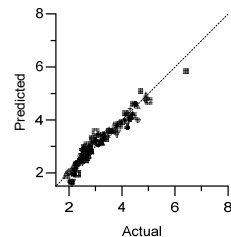
A), and B) (right panels) Tables of the statistical normality test D'Agostino-Pearson omnibus performed on female datasets derived from Figure 7A. (Right panels) QQ normality plots resulting from this normality test.

A

Test for normal distribution of CD male blood lactate datasets

D'Agostino & Pearson Test	CD 1	CD 3	CD 5	CD 8	CD 10	CD 12	CD 15	CD 17	CD 19	CD 22	CD 24	CD 26
K2	12.2	1.8	0.6	2.4	1.0	0.4	2.7	0.2	4.9	0.3	2.7	0.7
P value	0.002	0.4	0.7	0.3	0.6	0.8	0.3	0.9	0.1	0.9	0.3	0.7
Passed normality test (alpha=0.05)?	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P value summary	**	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

QQ Plot

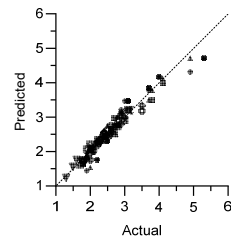


B

Test for normal distribution of KD male blood lactate datasets

D'Agostino & Pearson Test	KD 1	KD 3	KD 5	KD 8	KD 10	KD 12	KD 15	KD 17	KD 19	KD 22	KD 24	KD 26
K2	7.6	1.3	0.9	0.4	2.4	9.1	2.8	6.6	0.9	1.4	7.0	0.1
P value	0.02	0.5	0.7	0.8	0.3	0.0	0.2	0.0	0.7	0.5	0.0	1.0
Passed normality test (alpha=0.05)?	No	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No	Yes
P value summary	*	ns	ns	ns	ns	*	ns	*	ns	ns	*	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

QQ Plot

**Supplemental Figure 13. Normality tests for Figure 8A-i male datasets.**

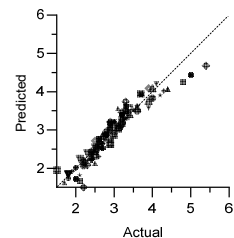
A), and B) (right panels) Tables of the statistical normality test D'Agostino-Pearson omnibus performed on male datasets derived from Figure 8A-i. (Right panels) QQ normality plots resulting from this normality test.

A

Test for normal distribution of CD female blood lactate datasets

QQ Plot

D'Agostino & Pearson Test	CD 1	CD 3	CD 5	CD 8	CD 10	CD 12	CD 15	CD 17	CD 19	CD 22	CD 24	CD 26
K2	1.0	7.7	1.4	1.1	2.7	1.7	9.6	0.6	4.1	9.6	7.5	3.3
P value	0.6	0.02	0.5	0.6	0.3	0.4	0.01	0.8	0.1	0.01	0.02	0.2
Passed normality test (alpha=0.05)?	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes
P value summary	ns	*	ns	ns	ns	ns	**	ns	ns	**	*	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

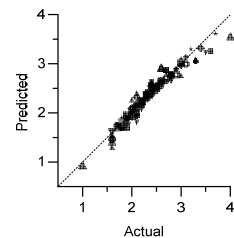


B

Test for normal distribution of KD female blood lactate datasets

QQ Plot

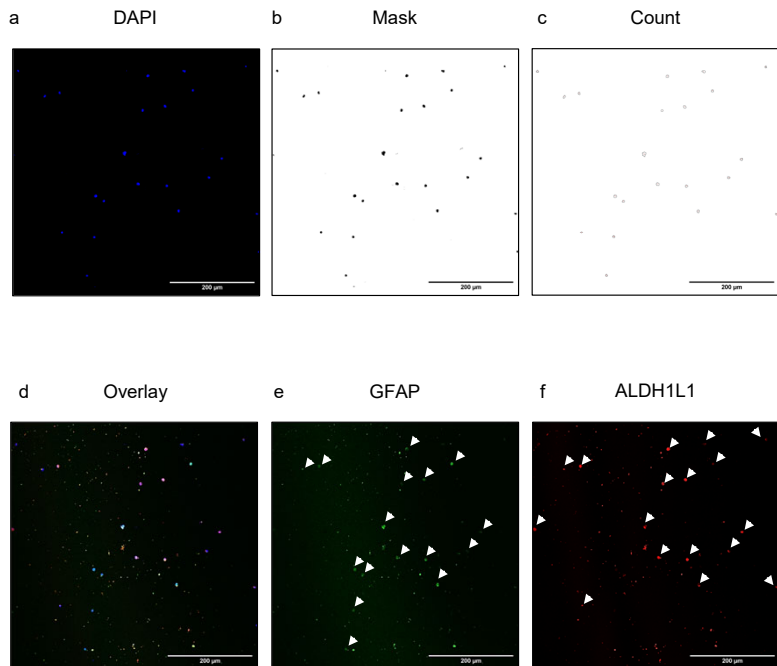
D'Agostino & Pearson Test	KD 1	KD 3	KD 5	KD 8	KD 10	KD 12	KD 15	KD 17	KD 19	KD 22	KD 24	KD 26
K2	0.9	8.6	4.1	7.2	0.5	0.5	0.3	4.1	1.2	0.6	6.0	0.6
P value	0.6	0.01	0.1	0.03	0.8	0.8	0.9	0.1	0.6	0.7	0.1	0.7
Passed normality test (alpha=0.05)?	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
P value summary	ns	*	ns	*	ns	ns	ns	ns	ns	ns	*	ns
Number of values	10	10	10	10	10	10	10	10	10	10	10	10

**Supplemental Figure 14. Normality tests for Figure 8A-ii female datasets.**

A), and B) (right panels) Tables of the statistical normality test D'Agostino-Pearson omnibus performed on female datasets derived from Figure 8A-ii. (Right panels) QQ normality plots resulting from this normality test.

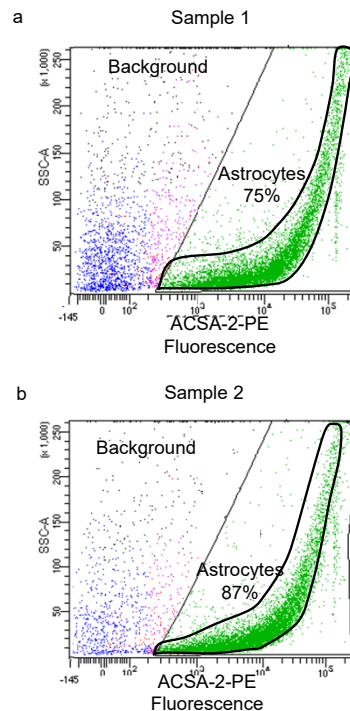
A

Immunostaining



B

FACS

**Supplemental Figure 15. Assessment of astrocyte extract purity.**

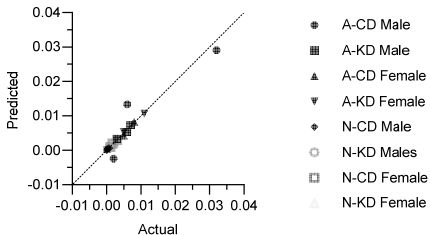
A) Immunostaining example in an ROI from an astrocyte fraction:

- (a) Nucleus staining with DAPI (blue).
- (b) DAPI signals were filtered with a mask (black dots) to remove noise.
- (c) The number of nuclei (circles) was automatically counted from the segmented image (ii).
- (d) Overlay image showing DAPI (blue), GFAP (green), and ALDH1L1 (red) staining within the ROI.
- (e) Split image from (iv) highlighting GFAP staining (green) designated by white arrowheads.
- (f) Split image from (iv) highlighting ALDH1L1 staining (red) designated by white arrowheads.

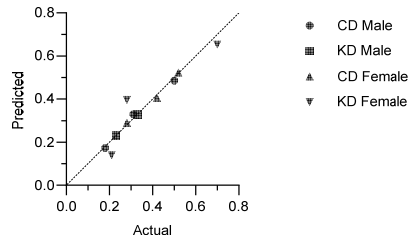
Scale bar = 200 µm.

B) FACS gating strategy for astrocyte purity validation. Samples 1 (a) and 2 (b) were analyzed after ACSA2-magnetic separation, distinguishing the astrocyte population (green) from the background noise (blue).

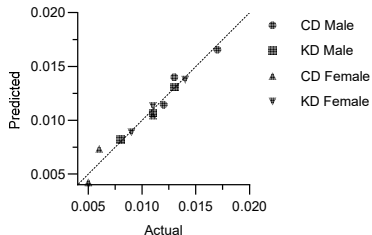
A Lactate datasets



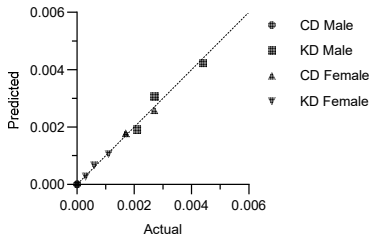
B Neuron glucose datasets



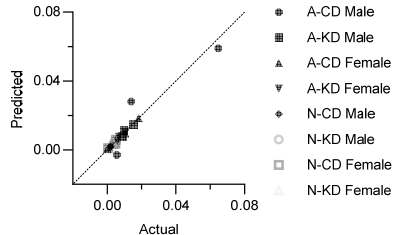
C Brain glycogen datasets



D Astrocyte glutamine datasets



E Glutamate datasets



Supplemental Figure 16. QQ normality plots of brain metabolites.

QQ normality plots for brain metabolites, including A) lactate, B) glucose, C) glycogen, D) glutamine, and E) glutamate. Metabolite levels were measured in astrocytes (A), neurons (N), or brain tissues from mice fed either CD or KD.