

Supplemental information

The role of brown adipose tissue

in branched-chain amino acid clearance in people

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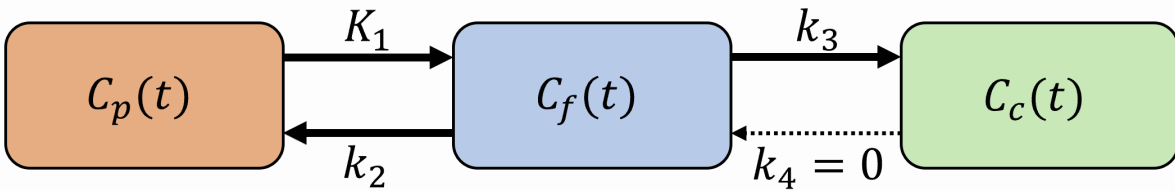


Figure S1. Illustration of the irreversible two-tissue compartmental model used for analyzing dynamic ^{18}F -fluciclovine positron emission tomography data. C_p : tracer concentration in plasma; C_f : free-state (i.e., interstitial space) compartment; C_c : intracellular space compartment. K_1 and k_{2-4} : flux rates between the different compartments. The parameter K_i (net uptake rate) was calculated as follows $K_i = \frac{K_1 k_3}{k_2 + k_3}$ in the unit of $\text{mL}/\text{min}/\text{cm}^3$ and reflects the clearance of ^{18}F -fluciclovine from blood to tissue. Related to Figure 3.

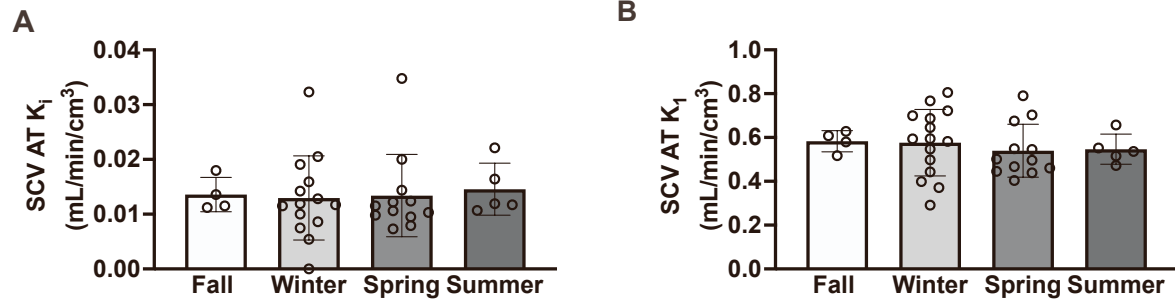


Figure S2. Seasonal variability and ^{18}F -fluciclovine uptake in supraclavicular adipose tissue (n = 35-36). Data presented at mean and SD. AT: adipose tissue, HU: Hounsfield Units, K_1 : net uptake rate reflecting clearance of ^{18}F -fluciclovine from blood to tissue, SCV: supraclavicular, SUV_{mean} : mean standardized uptake value. Related to Figure 3.

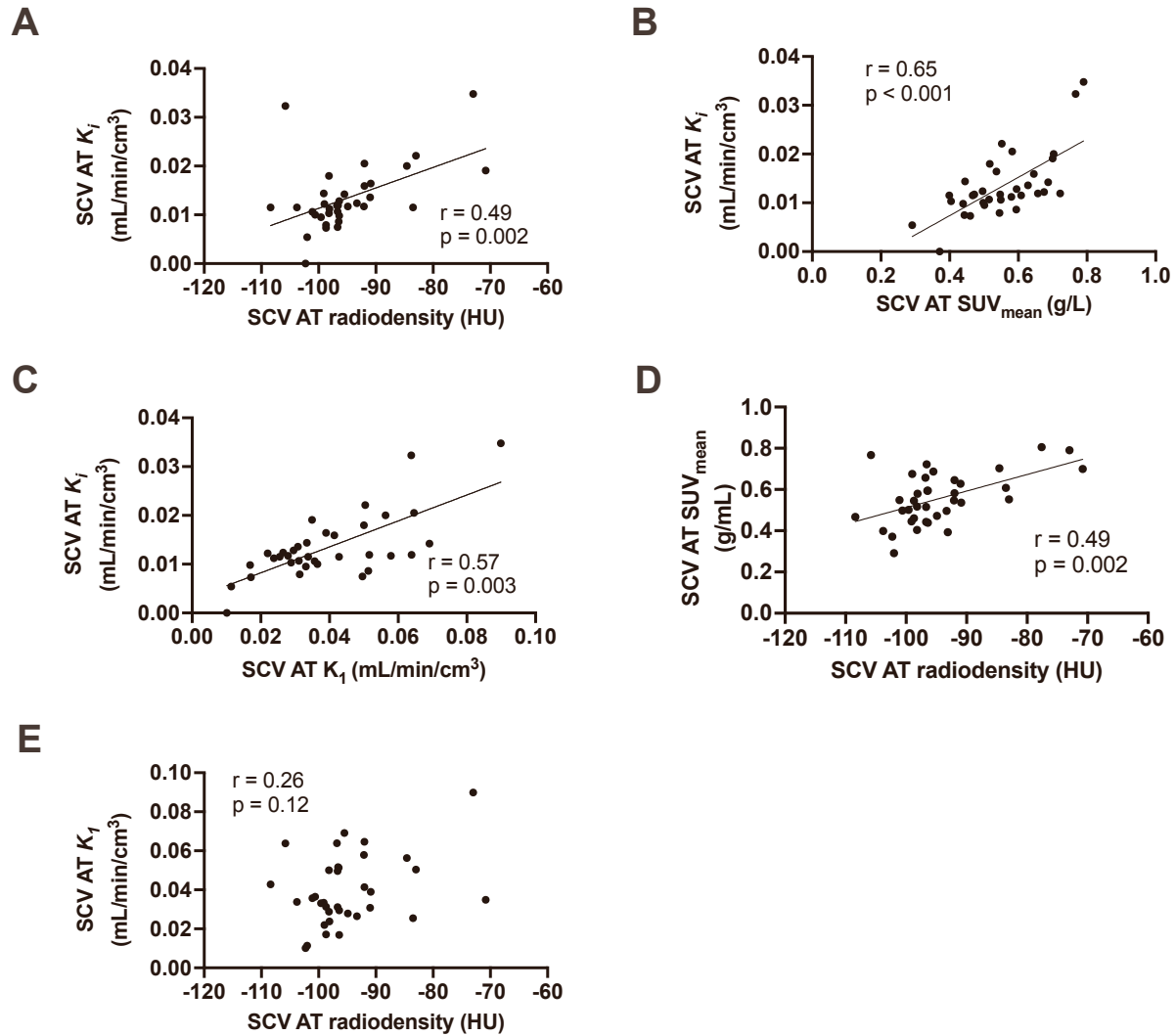


Figure S3. Inter-relationships among supraclavicular adipose tissue radiodensity and ¹⁸F-fluciclovine kinetics (n = 35-36). Spearman's rho was used to evaluate the correlation between the different variables of interest. AT: adipose tissue, HU: Hounsfield Units, K_i : ¹⁸F-fluciclovine tracer delivery rate, partially reflecting tissue perfusion, K_1 : net uptake rate reflecting clearance of ¹⁸F-fluciclovine from blood to tissue, SCV: supraclavicular. Related to Figure 3.

Parameters	All n = 23	LBAT n = 7	HBAT n = 16	Participants with paired biopsies n = 12
Age (years)	41 ± 12	47 ± 14	38 ± 11	38 ± 12
Sex (females/males)	17/6	4/3	13/3	10/2
Race (White/ Black/Asian)	20/2/1	5/1/1	15/1/0	12/0/0
Height (cm)	169 ± 8	171 ± 5	169 ± 9	166 ± 7
Weight (kg)	90 ± 13	90 ± 13	90 ± 14	86.8 ± 11.3
BMI (kg/m²)	31 ± 3	31 ± 3	32 ± 3	32 ± 2
Body fat (%)	42 ± 6	41 ± 3	43 ± 7	44 ± 3

Table S1. Demographic and anthropometric characteristics of healthy participants that provided adipose tissue biopsies. Data are means ± SD. HBAT: group of participants with brown adipose tissue volume equal to or more than 20 ml; LBAT: group of participants with brown adipose tissue volume less than 20 ml. Related to Table 1 and Figure 5.

Gene	Accession No.	Forward (F) and Reverse (R) Primer
<i>BCAT1</i>	NM_005504.7	F: CCGACGGAACAATGAAGGATTG R: GTCCCCACCACCTCTTTTGA
<i>BCAT2</i>	NM_001190.4	F: ACAGTTACGCGCCGCA R: CAGGTCTGCAGCCTTGAAAC
<i>BCKDHB</i>	NM_183050.4	F: CCGGGAGTACGGGCAAAC R: TGACCGCAATTCCGATTCCA
<i>RPLP0</i>	NM_001002	F: GTGATGTGCAGCTGATCAAGACT R: GATGACCAGCCCAAAGGAGA
<i>SLC25A44</i>	NM_001286184.2	F: GCTGGGAACGACGGATAGAC R: GGTGCCTGAAGACCTTCTCA
<i>UCP1</i>	NM_021833	F: AGGTCCAAGGTGAATGCC R: TTACCACAGCGGTGATTGTTC

Table S2. Sequence of primers used for reverse transcription polymerase chain reaction. Related to Figure 5.