Supplemental information

^{18}F-FAC PET visualizes brain-infiltrating leukocytes in a mouse model of multiple sclerosis

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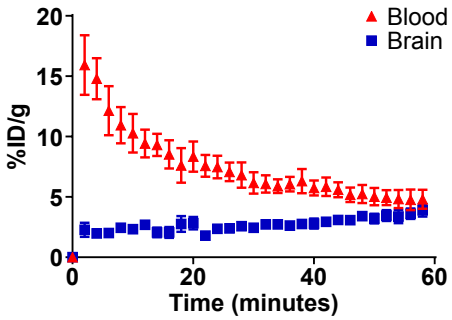
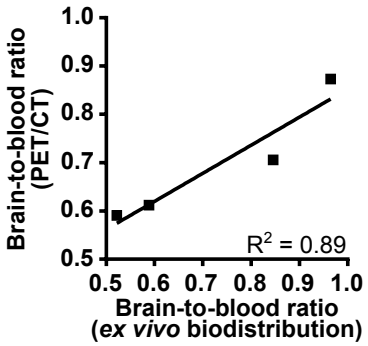
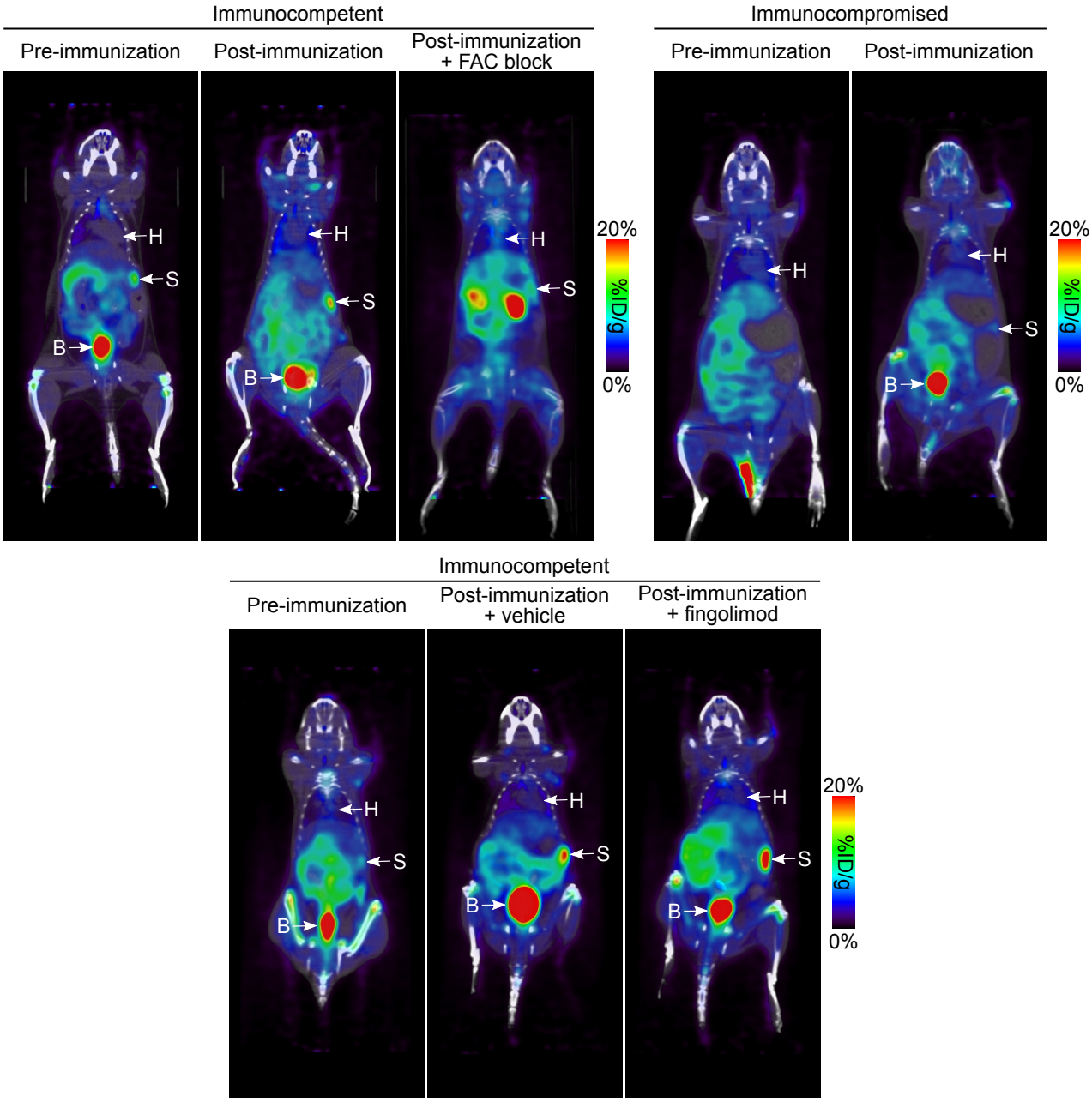


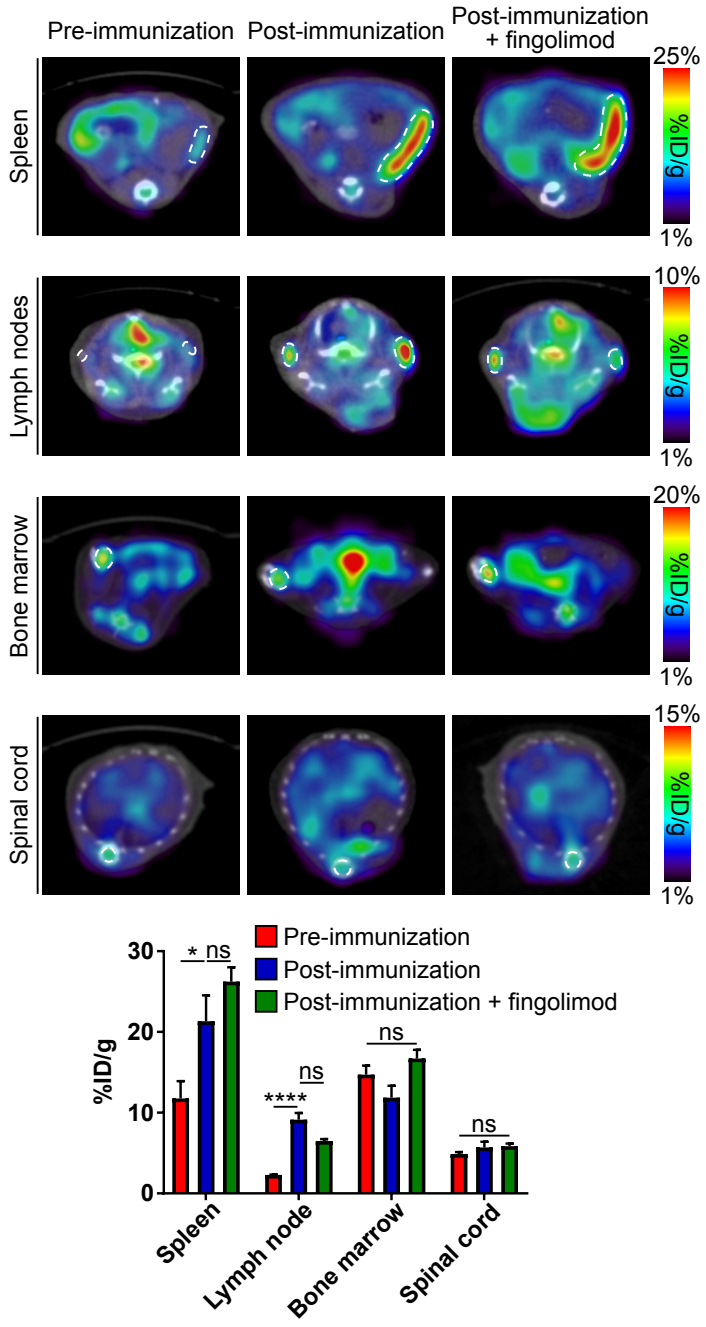
Supplemental Figure 1. Time-activity curves of ^{18}F-FAC accumulation in the blood and brains of healthy mice. *n*=5.



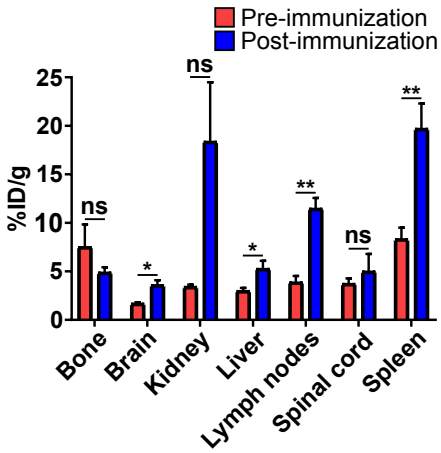
Supplemental Figure 2. Brain-to-blood ratios of ^{18}F-FAC in healthy mice, as measured from the PET/CT images and *ex vivo* biodistribution studies. *n*=4.



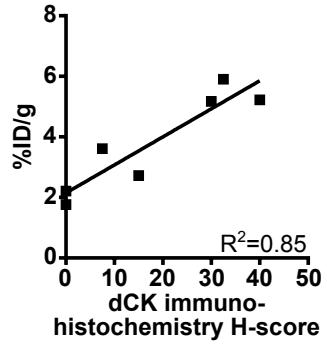
Supplemental Figure 3. ^{18}F-FAC accumulation in immunocompetent and immunocompromised mice pre- and post-immunization, and co-injected with non-radiolabeled FAC (FAC block) or treated with vehicle or fingolimod. H = heart, S = spleen, B = bladder.



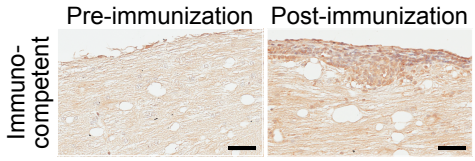
Supplemental Figure 4. ^{18}F-FAC PET can be used to monitor peripheral immune activation at specific locations throughout the body in EAE mice and following treatment with an immunomodulatory drug. Representative transverse ^{18}F-FAC PET/CT images of immunocompetent mice pre-immunization, post-immunization, and post-immunization and treated with fingolimod. Spleen, lymph nodes, bone marrow, and spinal cord encircled in a white dotted line (*top*). Quantification (*bottom*). Pre-immunization and post-immunization: *n*=7; post-immunization and treated with fingolimod: *n*=3. *: P<0.05; ****: P<0.0001, ns: not significant.



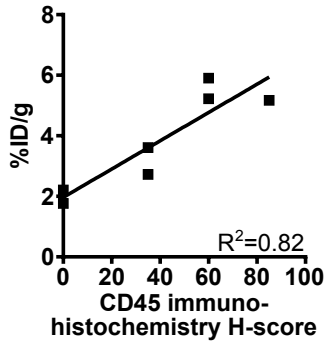
Supplemental Figure 5. ^{18}F-FAC biodistribution, measured e*x vivo* in organs from immunocompetent mice pre- and post-immunization. *n*=4 except for spinal cord which is *n*=3. *: P<0.05, **: P<0.01, ns: not significant.



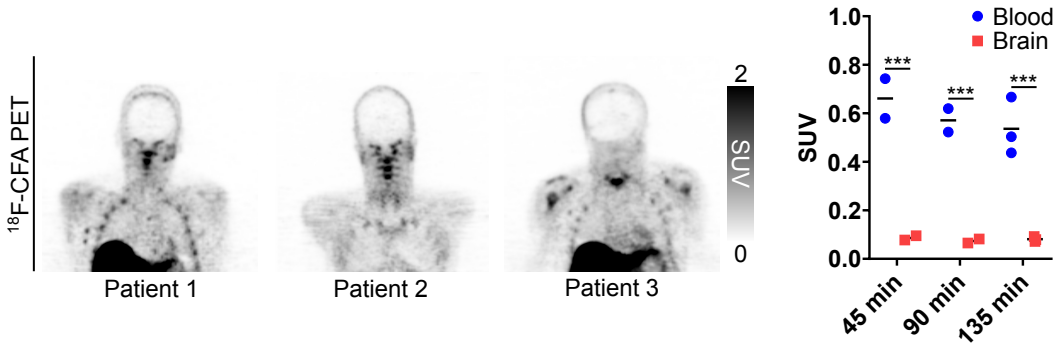
Supplemental Figure 6. dCK immunostaining (as measured by an immunohistochemistry H-score) and ^{18}F-FAC accumulation in the brains of immunocompetent mice. *n*=7.



Supplemental Figure 7. dCK immunostaining of spinal cord tissue sections from immunocompetent mice pre- and post-immunization. 40x magnification images. Scale bars: 50 microns. Representative images of *n*=2.



Supplemental Figure 8. CD45 immunostaining (as measured by an immunohistochemistry H-score) and ^{18}F-FAC accumulation in the brains of immunocompetent mice. *n*=7.



Supplemental Figure 9. ^{18}F-CFA does not readily cross the blood-brain barrier in healthy human subjects. Representative coronal PET images of healthy volunteers injected with ^{18}F-CFA at 135 min post-tracer injection (*left*). Blood and brain ^{18}F-CFA accumulation, quantified from the PET images of healthy volunteers (*right*). The PET scans analyzed here are the same as those reported in Ref. 25. 45 and 90 min time point: *n*=2; 135 min time point: *n*=3. ***: P<0.001.