

# (11)C-ABP-688

[11 C]ABP688 is a [positron emission tomography](#) (PET) [radioligand](#) that binds selectively to [Metabotropic glutamate receptor 5s \(mGluR5\)](#). The use of this [tracer](#) has identified [receptor](#) binding changes in clinical populations, and has been informative in drug occupancy studies. However, previous studies have found significant increases in [11 C]ABP688 binding in the later scan of same-day comparisons, and estimates of test-retest reliability under consistent scanning conditions are not available. The objective of a study of Smart et al., was to assess the variability of [11 C]ABP688 binding in healthy people in scans performed at the same time of day.

Two [11 C]ABP688 scans were acquired in eight healthy volunteers (6 women, 2 men) using a high-resolution research tomograph (HRRT). Scans were acquired 3 weeks apart with start times between 10:00am and 1:30pm. Mean mGluR5 binding potential (BPND ) values were calculated across cortical, striatal and limbic brain regions. Participants reported on subjective mood state after each scan and blood samples were drawn for cortisol analysis.

No significant change in BPND between scans was observed. Variability in BPND values of 11 to 21% was observed across regions, with the greatest change in the hippocampus and amygdala. Reliability was low to moderate. BPND was not statistically related to scan start time, subjective anxiety, serum cortisol levels, or menstrual phase in women.

[11 C]ABP688 BPND estimates show moderate variability in healthy people. Reliability is fair in cortical and striatal regions, and lower in limbic regions. Future research using this ligand should account for this in study design and analysis <sup>1)</sup>.

<sup>1)</sup>

Smart K, Cox SML, Nagano-Saito A, Rosa-Neto P, Leyton M, Benkelfat C. Test-retest variability of [(11) C]ABP688 estimates of metabotropic glutamate receptor subtype 5 availability in humans. Synapse. 2018 Jun 23. doi: 10.1002/syn.22041. [Epub ahead of print] PubMed PMID: 29935121.

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