

[¹¹C]PE2I reference tissue compartment model fit

Fitting

The nonlinear (full) reference tissue compartment model fit to regional TACs was made using program fit_rtcn 2.3.1, but the BP results were not reliable (too complex model), and results are not shown.

Simplified reference tissue model (SRTM), transformed into multilinear equations, was fitted to regional curves with program lhsrtm 1.3. The results and fitted TACs are shown below. Parametric BP images were computed using program imgsrtm 1.2, and the BP images are shown below.

```
lhsrtm 1.3 (c) 2002-2004 by Turku PET Centre
Date:      2004-08-10 13:22:56
Data file:  jkaravg.dft
Reference region: cer All
Data range: 63 min (N=15)
Data was weighted.
```

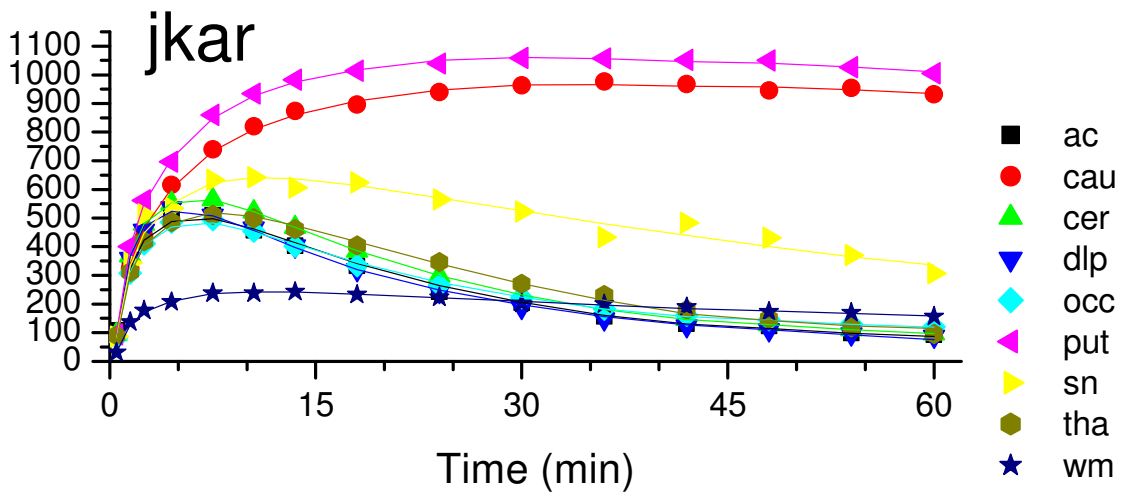
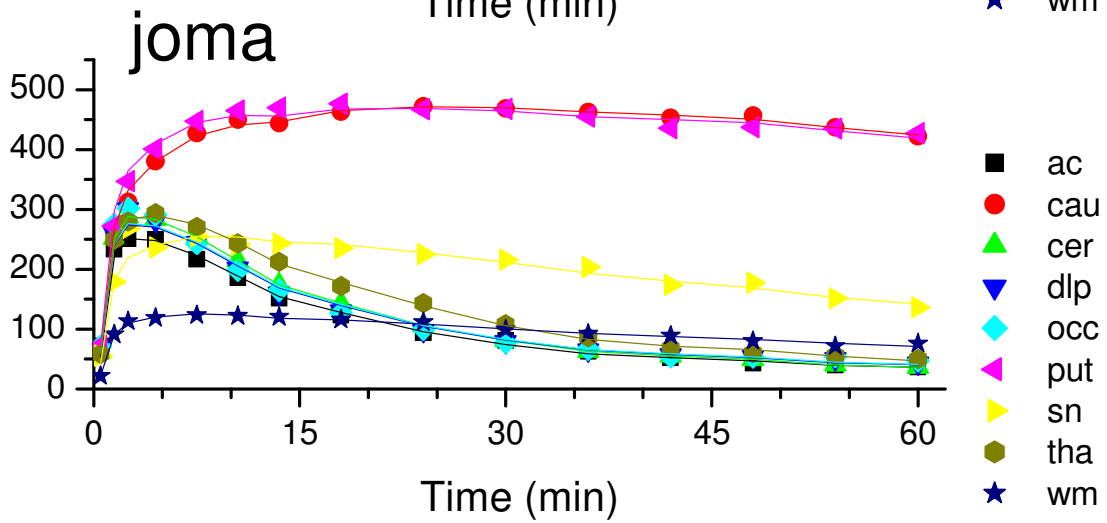
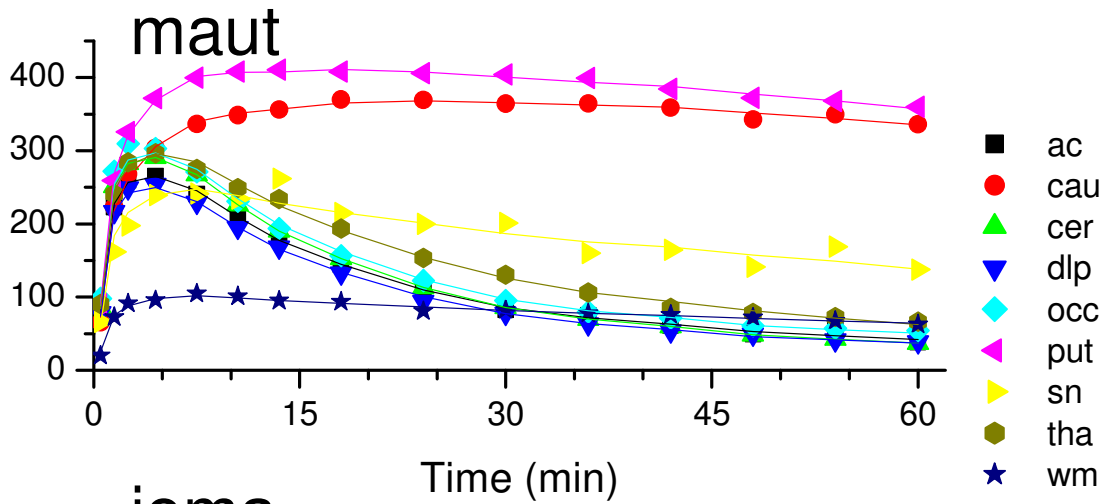
Region		BP	SS
ac	.	All	-0.121 3.3807e+04
cau	.	All	7.5838 1.5269e+07
dlp	.	All	-0.137 1.3406e+04
occ	.	All	-0.084 7.5987e+05
put	.	All	8.3704 6.6963e+06
sn	.	All	1.2007 1.0901e+07
tha	.	All	0.0637 1.9502e+05
wm	.	All	0.1484 7.7226e+05

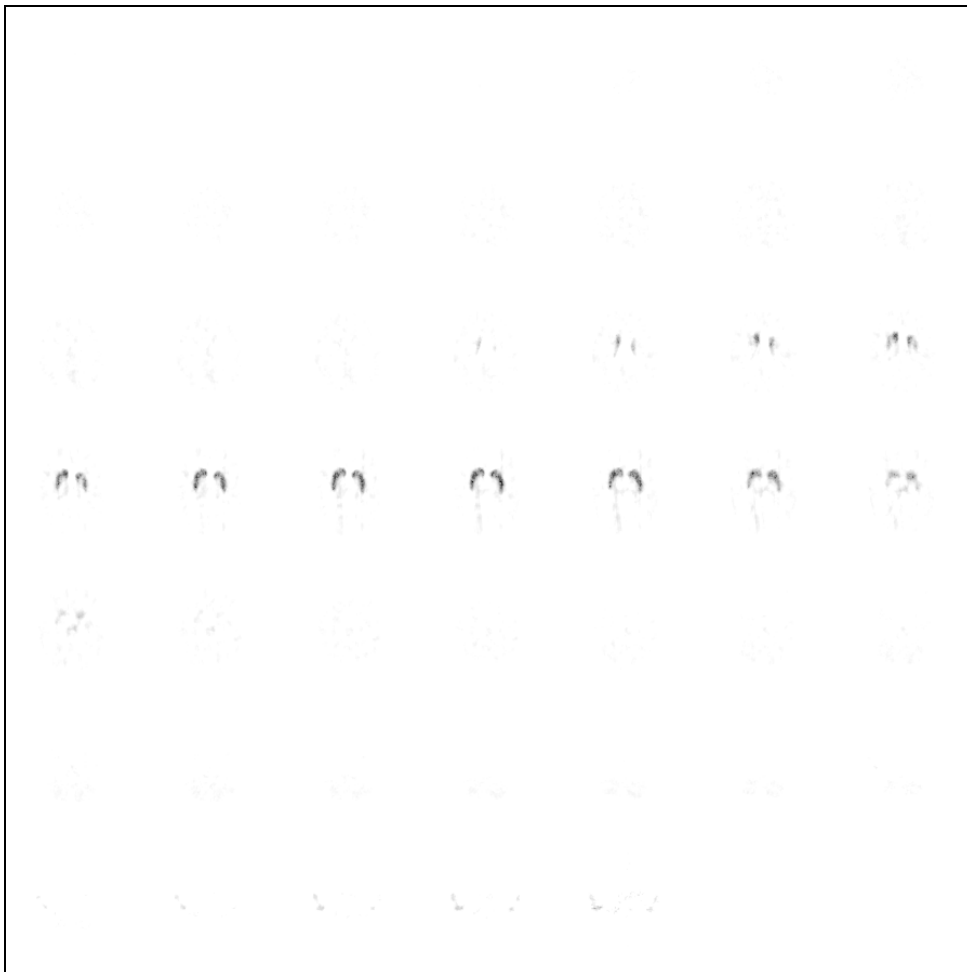
```
lhsrtm 1.3 (c) 2002-2004 by Turku PET Centre
Date:      2004-08-10 13:23:04
Data file:  jomaavg.dft
Reference region: cer All
Data range: 63 min (N=15)
Data was weighted.
```

Region		BP	SS
ac	.	All	-0.104 2.2939e+04
cau	.	All	7.3948 1.3918e+06
dlp	.	All	-0.031 4.7087e+04
occ	.	All	-0.025 5.6130e+04
put	.	All	7.2392 6.3480e+06
sn	.	All	1.3652 1.1986e+06
tha	.	All	0.1997 1.7097e+04
wm	.	All	0.1976 1.9555e+05

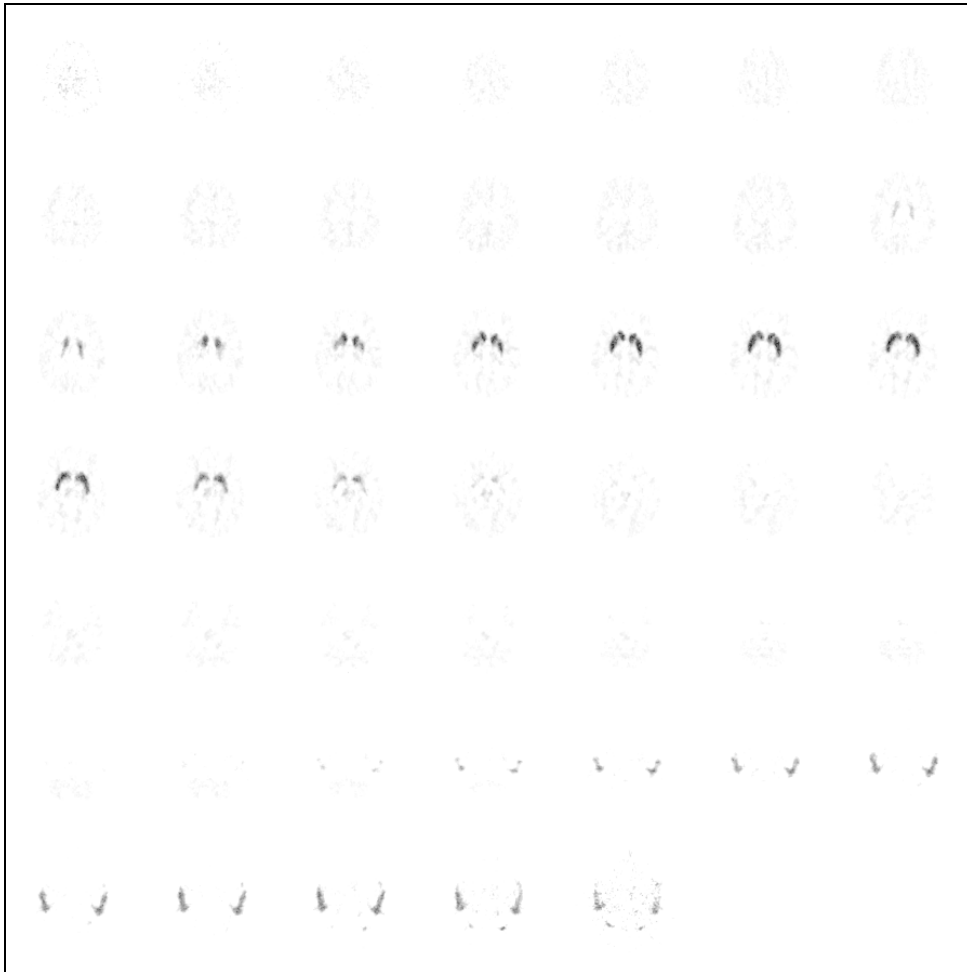
```
lhsrtm 1.3 (c) 2002-2004 by Turku PET Centre
Date:      2004-08-10 13:23:12
Data file:  mautavg.dft
Reference region: cer All
Data range: 63 min (N=15)
Data was weighted.
```

Region		BP	SS
ac	.	All	-0.043 5.8164e+04
cau	.	All	5.7066 2.2239e+06
dlp	.	All	-0.122 1.7505e+04
occ	.	All	0.0707 1.1133e+05
put	.	All	6.0922 1.4555e+06
sn	.	All	0.9954 4.0650e+06
tha	.	All	0.3183 1.3288e+05
wm	.	All	0.1047 2.6766e+05

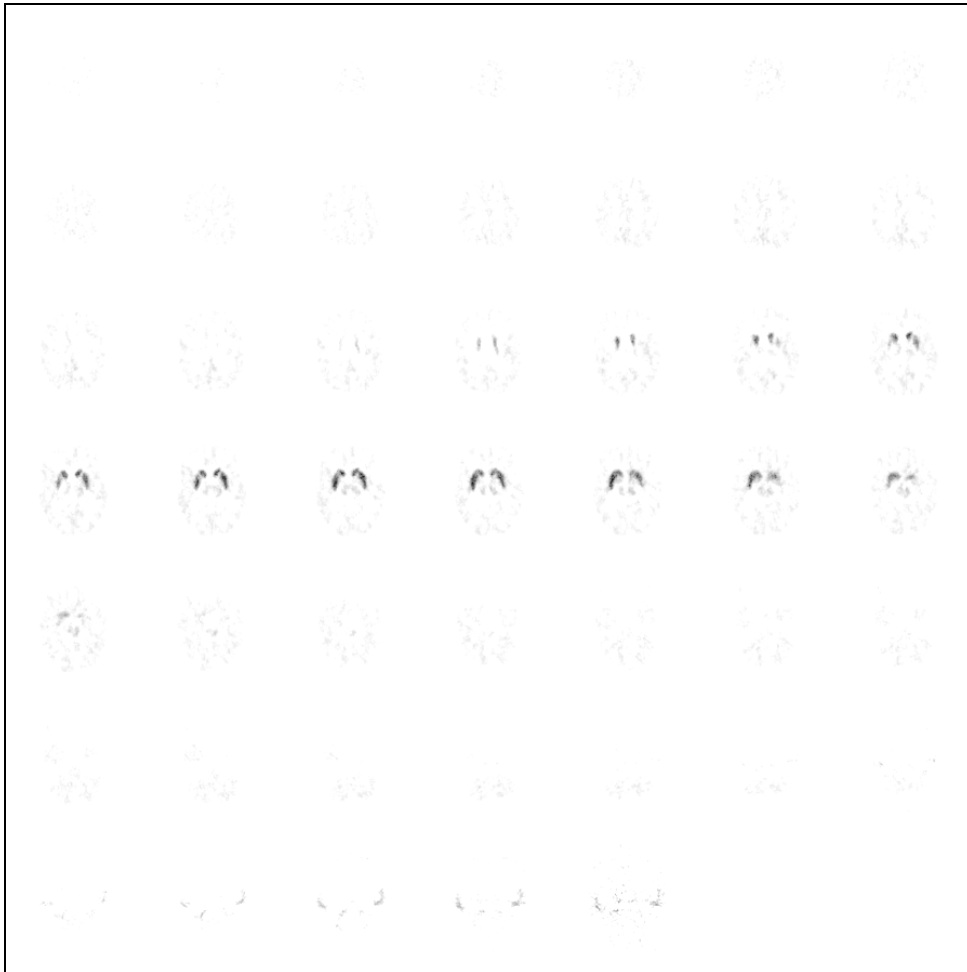




jkar



joma



maut

SRTM gives similar results as cerebellum input Logan plot with k'_2 correction (see the graph below). Both reference tissue input methods seem to lead into severe underestimation of DVR or BP in striatal regions, but produce not in low binding regions. Because of the similarity of results, SRTM should always be used instead of reference input Logan because it is not dependent on the population average of k'_2 .

Comparison is made here against the DVR values calculated from plasma-input Logan plot DV values. Note that although plasma input methods are “gold standards” in theory, the comparison may not be appropriate because of inaccuracies in plasma metabolite correction.

