**Supplemental material**

MR imaging acquisition of 3T MRI sequences

BCS patients underwent an additional 3 T MRI (Magnetom Trio; Siemens Healthcare, Erlangen, Germany) at the time of 7 T (*n* = 9) and during follow up (*n* = 4) using a 12-channel head RF coil. For anatomical T1-weighted imaging with acquisition of high-resolution isotropic 3D whole-brain datasets (1mm3), a magnetization-prepared rapid acquisition of gradient echoes (MPRAGE; TE = 3.03 msec, TR = 1900 msec, TI = 900msec, flip angle 9°) was applied. For T2-weighted imaging, a single-slab 3D T2-weighted turbo spin echo (TSE) sequence with high sampling efficiency (SPACE) was selected without (T2w; TE = 502 msec, TR = 5000 msec, echo train length (ETL) = 143 msec) or with fluid attenuation inversion recovery preparation (FLAIR; TE = 388 msec, TR = 6000 msec, TI = 2100 msec, ETL = 141 msec). Contrast-enhanced T1w images were acquired with MPRAGE 8 minutes after body-weight-adapted 0.1 mmol/kg contrast medium injection (Gadovist, 1 mmol/ml gadobutrol; Bayer Austria, Wien).