



**Figure S1: LCMoDel analysis.** In vivo semi-LASER spectra from IDH1 and IDH2 patients (volume of interest, 8 ml, TE = 110 ms, TR = 5s and number of transients, 128) and LCMoDel fit, modelling metabolite contributions to the neurochemical profile. The vertical scale was normalized to the total choline signal. Model spectra for 2-hydroxyglutarate (2-HG), alanine (Ala), glycerophosphocholine (GPC), phosphocholine (PC), citrate, creatine (Cr), phosphocreatine (PCr), glucose+taurine (Glc+Tau), glutamine (Gln), Glutamate (Glu), glutathione (GSH), glycine (Gly), lactate (Lac), myo-inositol (*myo-Ins*) and total NAA (tNAA) generated by using GAMMA/PyGAMMA simulation library of VESPA were imported into LCMoDel and used for spectroscopic quantification.