ACTR-79. ESTABLISHMENT OF CLINICAL PROTOCOL TARGETING CANCER STEM CELLS IN RECURRENT GliOBLASTOMA USING HIGH-THROUGHPUT DRUG SCREENING EnrIld Skags,1 2, Evgeny Kuleszov,1 Matti Bynumseen,1,2 Cecille Jonsgar Sandvik,2 Aija Kyttala,1 Iver Arne Langmoen1,2, Akai Lar ook,1 Emilia Gaal-Paavola,1 Markus Perola1, Krister Wennerberg1 and Einar Osl and Vik-Mo1;1 Wilhelm Magnus Laboratory for Neurosurgical Research, Department of Neurosurgery and Institute for Molecular Research, Oslo, Norway, 2Faculty of Medicine, University of Oslo, Oslo, Norway, 3Institute for Molecular Medicine Finland, FIMM, University of Helsinki, Helsinki, Finland, 4National Institute for Health and Welfare, Department of Health, Genomics and Biomarkers Unit, Helsinki, Finland, 5Department of Neurosurgery, Helsinki University Central Hospital, Helsinki, Finland

Despite aggressive multimodal oncological treatment, glioblastoma (GBM) disease progresses within 10 months. Due to the lack of treatment options for the relapsed disease, enrollment in clinical trials may be the best option. However, the fundamental preclinical studies leading to clinical investigation are primarily conducted using biological material from primary GBM, thus inadequately reflecting the biology of the recurrent disease. As only a minority of relapsed patients undergoes secondary surgery, little data exists of cancer stem cell (CSC) biology in recurrent GBM (recGBM). The purpose of the study was to establish a clinical protocol targeting patient-specific CSCs in recGBM for individualized therapy. We aimed to establish patient-specific cell cultures yielding >10⁶ cells we completed DSRT, allowing for an individualized evaluation of drug responses to be used in clinical decision-making and patient treatment.

ACTR-80. COMBINING A KETOGENIC DIET WITH INITIAL CHEMOTHERAPY & RADIATION THERAPIES FOR AGGRESSIVE GLIOMAS, A PILOT STUDY Kenneth Schwartz1, Mary Nicholson, Michele Nikoloz, Karl Olson1, Michael Zaken1, Mohamed Elhandaly1, Justin Clark1, Brian Figueroa1 and Howard Chang1;1 Michigan State University, East Lansing, MI, USA, 2Sparrow Hospital, East Lansing, MI, USA, 3Sparrow Hospital, Lansing, MI, USA

Tissue culture, animal studies and case reports suggests that combining a ketogenic diet (KD) with cytotoxic treatments like radiation, chemo-therapy or both may have a synergistic effect as initial treatment of aggressive gliomas. We report early results of a pilot study using a KD combined with radiation and chemot xx as initial tx of aggressive gliomas. Eligibility criteria included: 1. Tissue diagnosis; 2. Age over 18; 3. ECOG performance status of 2 or better; and 4. Not having diabetes. An isocaloric KD diet with 5:1 ratio as an independent diet combined of carbohydrates and protein was initiated and supervised by an experienced dietitian and the KD together with radiation and chemotherapy was maintained for 6 wks. Pts recorded daily AM weights decreased on average 10% for the 6 wk study. Blood counts were maintained and there were no significant changes in hematological, renal and liver function. Ketosis was maintained for the 6 wk study period with ketone levels checked twice daily and ketones ranging between 1.0 and 4.1. Glucose levels ranging between 80.3 and 120. Two subjects had not had progression of their gliomas 25mo (IDH mutant +) and 8 months since diagnosis (dx). In 4 pts disease progression has occurred 6, 8, 9 & 11 months after dx and 2 patients have died 15 months after they were diagnosed. Conclusion 1. Combining an adjuvant KD with radiation and chemo txs of radiation and chemo tx just after tissue diagnosis is feasible and safe; 2. Measurements of blood ketones and glucose help to insure continued ketosis; 3. Whether a KD is beneficial in humans with aggressive gliomas will require a larger study.