morphic xanthoastrocytoma were high, but the Ki-67 labeling index was 1%. In the ganglioglioma, the T/N ratio of FLT was high, but the T/N ratio of MET was low. CONCLUSION: Specialized multiple PET accumulation patterns for tumors are useful for discriminating each tumor.

IMG-03. RESPONSE ASSESSMENT IN PEDIATRIC LOW-GRADE GLIOMA: RECOMMENDATIONS FROM THE RESPONSE ASSESSMENT IN PEDIATRIC NEURO-ONCOLOGY (RAPNO) WORKING GROUP

Jason Fangusaro[1], Olas Witt[2], Pablo Hernaiz Driever[3], Asim Bag[4], Peter de Blank[5], Nadja Kadom[6], Lindsay Kilburn[7], Robert Lober[8], Nathan Robison[9], Michael Fisher[10], Roger Packer[11], Tina Young Poussaint[12], Ludmila Papusha[13], Shivaram Avula[14], Alba Brandes[15], Eric Bouffet[16], Daniel Bowers[17], Anton Artemov[18], Murali Chintagumpala[19], David Zurakowski[20], Martin van den Bent[21], Brigitte Bison[22], Kristen Yeom[23], Walter Taal[24], and Katherine Warren[25]; [1]Emory University and Children's Healthcare of Atlanta, Atlanta, GA, USA, [2]Hopp Children's Cancer Center (KiTZ), University Hospital and German Cancer Research Center (DKFZ), Heidelberg, Germany, [3]Charité-Universitätsmedizin Berlin, Freie Universität Berlin, Humboldt-Universität zu Berlin, and Berlin Institute of Health, Berlin, Germany, [4]St. Jude Children's Research Hospital, Memphis, TN, USA, [5]University of Cincinnati and Cincinnati Children's Hospital Medical Center, Cincinnati, OH, USA, [6]Emory University and the Children's Healthcare of Atlanta, Atlanta, GA, USA, [7]National Medical Center, Washington, DC, USA, [8]Dayton Children's Hospital and Wright State University Boonshoft School of Medicine, Dayton, OH, USA, [9]Children's Hospital Los Angeles, University of Southern California Keck School of Medicine, Los Angeles, CA, USA, [10]The Children's Hospital of Philadelphia, Perelman School of Medicine at the University of Pennsylvania, Philadelphia, PA, USA, [11]Children's National Hospital, Washington, DC, USA, [12]Boston Children's Hospital, Boston, MA, USA, [13]Dmitry Rogachev National Medical Research Center of Pediatric Hematology, Moscow, Russian Federation, [14]Alder Hey Children's NHS Foundation Trust, Liverpool, United Kingdom, [15]AUSL-IRCCS Scienze Neurologiche, Bologna, Italy, [16]The Hospital for Sick Children, Toronto, ON, Canada, [17]UT Southwestern, Dallas, TX, USA, [18]Dmitry Rogachev National Medical Research Center of Pediatric Hematology, Oncology and Immunology, Moscow, Russian Federation, [19]Texas Children's Cancer Center, Baylor College of Medicine, Houston, TX, USA, [20]Boston Children's Hospital and Harvard Medical School, Boston, MA, USA, [21]Erasmus MC Cancer Institute, Rotterdam, Netherlands, [22]Universitatsklinikum Wurzburg, Wurzburg, Germany, [23]Lucile Packard Children's Hospital, Stanford University, Palo Alto, CA, USA, [24]Erasmus University MC Cancer Institute, Rotterdam, Netherlands, [25]Dana Farber Cancer Institute/Boston Children's Cancer and Blood Disorders Center, Boston, MA, USA

INTRODUCTION: Pediatric low-grade gliomas (pLGG) show clinical and biological features that are distinct from their adult counterparts. Consequently, additional considerations are needed for response assessment in children compared to the established adult Response Assessment in Neuro-Oncology (RANO) criteria. Standardized response criteria in pediatric clinical trials are lacking, complicating comparisons of responses across studies. We therefore established an international committee of the Radiologic Assessment in Pediatric Neuro-Oncology (RAPNO) working group to develop consensus recommendations for response assessment in pLGG. METHODS: The committee consisted of 25 international experts in the areas of Pediatric Neuro-Oncology, Neuroradiology and Neurosurgery. The committee first developed a set of agreed upon topics they deemed necessary to understand the controversies of imaging utilization and assessment in pLGG. These topics were divided up among the committee members who presented all available literature to the entire RAPNO committee via web teleconference. Once presented, the group discussed these data and developed consensus statements and recommendations based on available literature, committee expertise and clinical experience. Each topic was discussed until a consensus was reached. RESULTS: Final consensus included recommendations about the following topics: specific imaging sequences, advanced imaging techniques, NF1-associated pLGG, molecular and histologic classification, assessment of cysts, vision and other functional outcomes as well as overall radiologic response assessment. CONCLUSIONS: The RAPNO pLGG consensus establishes systemic recommendations that represent an initial effort to uniformly collect and assess response in pLGG. These recommendations should now be evaluated internationally and prospectively in an effort to assess clinical utility, validate and modify as appropriate.

IMG-04. RESPONSE ASSESSMENT IN PEDIATRIC HIGH-GRADE GLIOMA: RECOMMENDATIONS FROM THE RESPONSE ASSESSMENT IN PEDIATRIC NEURO-ONCOLOGY WORKING GROUP

Craig Erker[1,2], Benita Tamrazi[3,4], Tina Y. Poussaint[5,6], Sabine Mueller[7,8], Daddy Mata-Mbemba[1,2], Enrico Franceschi[9,10], Alba A. Brandes[9,11], Arvind Rao[12], Kellie B. Haworth[13], Patrick Y. Wen[5,14], Stewart Goldman[15,16], Gilbert Vezina[17,18], Tobey J. Macdonald[19,20], Ira J. Dunkel[21,22], Paul S. Morgan[23,24], Tim Jaspan[23,24], Michael D. Prados[7], and Katherine E. Warren[25]; [1]Dalhousie University, Halifax, NS, Canada, [2]IWK Health Centre, Halifax, NS, Canada, [3]Keck School of Medicine University of Southern California, Los Angeles, CA, USA, [4]Children's Hospital of Los Angeles, Los Angeles, CA, USA, [5]Harvard Medical School, Boston, MA, USA, [6]Boston Children's Hospital, Boston, MA, USA, [7]University of California San Francisco, San Francisco, CA, USA, [8]UCSF Benioff Children's Hospital, San Francisco, CA, USA, [9]Azienda Unità Sanitaria Locale– Istituto di Ricovero e Cura a Carattere Scientifico Istituto delle Scienze Neurologiche, Bologna, Italy, [10]Bellaria-Maggiore Hospital, Bologna, Italy, [11]Bellaria-Maggiore Hospital, AUSL Bologna, Bologna, Italy, [12]University of Michigan, Ann Arbor, MI, USA, [13]St. Jude Children's Research Hospital, Memphis, TN, USA, [14]Dana-Farber Cancer Institute, Boston, MA, USA, [15]Northwestern University Feinberg School of Medicine, Chicago, IL, USA, [16]Ann & Robert H, Lurie Children's Hospital of Chicago, Chicago, IL, USA, [17]George Washington University School of Medicine and Health Sciences, Washington, DC, USA, [18]Children's National Medical Center, Washington, DC, USA, [19]Emory University School of Medicine, Atlanta, GA, USA, [20]Children's Healthcare of Atlanta, Atlanta, GA, USA, [21]Weill Cornell Medical College, New York, NY, USA, [22]Memorial Sloan-Kettering Cancer Center and Weill Cornell Medical College, New York, NY, USA, [23]Nottingham University Hospitals National Health Service Trust, Nottingham, United Kingdom, [24]Queen's Medical Centre, Nottingham, United Kingdom, [25]Dana-Farber/Boston Children's Cancer and Blood Disorders Center, Boston, MA, USA

INTRODUCTION: Response criteria for pediatric high-grade gliomas (pHGG) have varied historically and across clinical trials. Compared to adult HGG, pHGG response assessment has unique challenges. An international Response Assessment in Pediatric Neuro-Oncology (RAPNO) working group was established to develop pHGG response assessment criteria. METHODS: Pediatric and adult neuro-oncologists, neuro-radiologists and experts in imaging informatics developed a consensus statement and established a unified response assessment for biopsy-proven pHGG, excluding DIPG. This was achieved by identifying major challenges, reviewing existing literature and current practices, and finally developing recommendations through an iterative process. RESULTS: Categories for response assessment include complete response, partial response, minor response, stable disease and progressive disease. Refractory disease is excluded. Criteria used to determine response assessment include quantitative evaluation of measurable disease, qualitative assessment of diffusion imaging, presence or absence of new lesions, clinical status using performance score, and vascular endothelial growth factor inhibitor and/or corticosteroid use. Response is determined over 2-time points ≥ 8 weeks apart, and when progressive disease is unclear, guidance for repeat MRI imaging and/or utility of repeat biopsy is described. A number of recommendations are also given to standardize response assessment across clinical trials including MRI protocol sequence recommendations for brain and spine, definitions for measurable and non-measurable disease, and imaging time points with post-operative considerations. In addition, guidance is given for differentiating vasogenic edema versus tumor invasion in non-enhancing disease. CONCLUSION: Consensus recommendations and response definitions have been established and, similar to other RAPNO recommendations, prospective validation in clinical trials is warranted.

IMG-05. INITIAL RADIOGRAPHIC ASSESSMENT OF DWI AND ADC VALUES IN CHILDREN AND YOUNG ADULTS TREATED WITH DAY101 (TAK-580) FOR RECURRENT LOW-GRADE GLIOMAS (LGG) HARBORING MAPK ALTERATIONS

Emily Krzykwa[1], Ronald L. Korn[2], Samuel C. Blackman[3], and Karen D. Wright[1]; [1]Dana Farber Cancer Institute, Boston, MA, USA, [2]Imaging Endpoints, Scottsdale, AZ, USA, [3]Day One Biopharmaceuticals, Seattle, WA, USA

BACKGROUND: Apparent diffusion coefficient (ADC) is a quantitative measure reflecting observed net movement of water calculated from a diffusion-weighted image (DWI), correlating with tumor cellularity. The higher cellularity of high-grade gliomas results in diffusion restriction and reduced ADC values, whereas the lower cellularity of low-grade gliomas (LGGs) gives higher ADC values. Here we examine changes in ADC values in patients with LGGs treated with the type 2 RAF inhibitor DAY101 (formerly TAK580). METHODS: Historical, baseline, and on-treatment brain MRIs for 9 patients enrolled on a phase 1 study of DAY101 in children and young adults with radiographically recurrent or progressive LGG harboring MAPK pathway alterations were obtained, de-identified and independently evaluated for ADC changes. Time points included baseline, first follow-up, and best response. Data processing of ADC estimates was performed using pmod molecular image software package. ADC changes were displayed as a histogram with mean values. Results were based upon a single read paradigm. RESULTS: There was a clear shift to lower ADC values for the solid component of tumors, reflecting changes in cellularity and tissue organization, while necrosis correlated with a shift toward higher ADC values. DWI