Features Unique to IB Neuro™

1. IB Neuro incorporates the **most-proven contrast leakage algorithm,** which was **co-developed by IB co-founder Dr. Kathleen Schmainda.** Dr. Schmainda has performed numerous studies to validate the IB Neuro contrast agent leakage method and implementation. IB Neuro is the only platform to incorporate this version – proven with over 20 years of studies.

   Boxerman JL, Schmainda KM, Weisskoff RM. Relative cerebral blood volume maps corrected for contrast agent extravasation correlate with glioma tumor grade whereas uncorrected maps do not. *Am J Neurorad* 27:859-67 (2006). PMID: 26361983.

2. IB Neuro is the only DSC-MRI analysis software that uses **patented standardization technology.**

   - **First paper describing standardized rCBV with improved consistency:**

   Bedekar D, Jensen T, Schmainda KM. Standardization of relative cerebral blood volume (rCBV) image maps for ease of both inter- and intrapatient comparisons. Magn Reson Med. 2010;64(3):907-13. Epub 2010/09/02. doi: 10.1002/mrm.22445. PubMed PMID: 20806381; PMCID: PMC4323176.

   - **Standardized rCBV demonstrates improved repeatability compared to normalized methods available on other platforms:**

   Prah MA, Stufflebeam SM, Paulson ES, Kalpathy-Cramer J, Gerstner ER, Batchelor TT, Barboriak DP, Rosen BR, Schmainda KM. Repeatability of Standardized and Normalized Relative CBV in Patients with Newly Diagnosed Glioblastoma. AJNR Am J Neuroradiol. 2015;36(9):1654-61. Epub 2015/06/13. doi: 10.3174/ajnr.A4374. PubMed PMID: 26066626; PMCID: PMC4567906.

3. IB Neuro is the only DSC-MRI analysis software used in national **multi-center clinical trials that incorporate DSC-MRI.** Study results show that **IB Neuro-generated rCBV can be used to predict outcomes**. This also demonstrates the ability of IB to reliably analyze data from all MRI vendor platforms.

   - **ACRIN 6677:**

   Schmainda KM, Zhang Z, Prah M, Snyder BS, Gilbert MR, Sorensen AG, Barboriak DP, Boxerman JL. Dynamic susceptibility contrast MRI measures of relative cerebral blood volume as a prognostic marker for overall survival in recurrent glioblastoma: results from the ACRIN 6677/RTOG 0625 multicenter trial. Neuro Oncol. 2015;17(8):1148-56. Epub 2015/02/04. doi: 10.1093/neuonc/nou364. PubMed PMID: 25646027; PMCID: PMC4490871.

   - **ACRIN 6684:**

   Gerstner ER, Zhang Z, Fink JR, Muzi M, Hanna L, Greco E, Prah M, Schmainda KM, Mintz A, Kostakoglu L, Eikman EA, Ellingson BM, Ratai EM, Sorensen AG, Barboriak DP, Mankoff DA, Group AT. ACRIN 6684: Assessment of Tumor Hypoxia in Newly Diagnosed Glioblastoma Using 18F-FMISO PET and MRI. Clin Cancer Res. 2016;22(20):5079-86. Epub 2016/05/18. doi: 10.1158/1078-0432.CCR-15-2529. PubMed PMID: 27185374; PMCID: PMC5065740.

   - **ACRIN 6686** (paper forthcoming).
   - **ECOG-ACRIN (EAF151)** (active clinical trial)

4. IB Neuro-generated rCBV has been **independently validated with tissue samples.**

   - **Demonstrated ability of IB Neuro to estimate tumor burden:**

   Hu LS, Eschbacher, Heiserman JE, Dueck AC, Shapiro WR, Liu S, Karis JP, Smith KA, Coons SW, Nakaji P, Spetzler RF, Feuerstein BG, Debbins J, Baxter LC. Reevaluating the imaging definition of tumor progression: perfusion MRI quantifies recurrent glioblastoma tumor fraction, pseudoprogression, and radiation necrosis to predict survival.

- **Demonstrated ability of IB Neuro rCBV to distinguish tumor from treatment effect:**
Prah MA, Al-Gizawiy MM, Mueller WM, Cochran EJ, Hoffmann RG, Connelly JM, Schmainda KM. Spatial discrimination of glioblastoma and treatment effect with histologically-validated perfusion and diffusion magnetic resonance imaging metrics. J Neurooncol. 2018;136(1):13-21. Epub 2017/09/14. doi: 10.1007/s11060-017-2617-3. PubMed PMID: 28900832; PMCID: PMC5756123.

5. Direct comparison studies demonstrate **superiority of IB Neuro over other platforms.**

- **IB Neuro proved more accurate than NordicICE:**
Hu LS, Kelm Z, Korfiatis P, Dueck AC, Elrod C, Ellingson BM, Kaufmann TJ, Eschbacher JM, Karis JP, Smith K, Nakaji P, Brinkman D, Pafundi D, Baxter LC, Erickson BJ. Impact of software modeling on the accuracy of perfusion MRI in Glioma. AJNR Am J Neuroradiol, 2015; 36(12):2242-9.

6. IB Neuro is the **only platform PROVEN reliable using 50% less gadolinium contrast agent.**

- **Using a low flip angle acquisition and IB Neuro post-processing, 50% less contrast can be used with result comparable to the double dose method:**
Schmainda KM, Prah MA, Hu LS, Quarles LS, Semmineh N, Rand SD, Connelly JM, Anderies B, Zhou Y, Liu Y, Logan B, Stokes A, Baird G, Boxerman JL. Moving towards a consensus DSC-MRI protocol: validation of a low flip angle single dose option as a reference standard for brain tumors. AJNR Am J Neurorad, 2019, 40(4):626-633.