



Figure S1 Proposed mechanism for DDVD phenomenon. The diffusion-weighted sequence is based on T2-weighted spin-echo sequence with application of two equal gradients (a dephasing gradient and a rephasing gradient) on each side of the 180° radiofrequency pulse. Static molecules are dephased by the first motion probing gradient and rephased by the second motion probing gradient; therefore, measured signal intensity is maintained. In contrast, fast moving molecules undergo dephasing by the first motion probing gradient but are poorly rephased by the second motion probing gradient because of their motion, thereby resulting in signal loss. This phenomenon is apparent even when the motion probing gradient b -value is very small. When the motion probing gradient b -value is increasingly high, even for static molecules, the ‘rephasing’ by the second motion probing gradient is increasingly less coherent. In practice, data are commonly obtained with EPI acquisition, and diffusion sensitizing gradient is applied in three orthogonal directions. DDVD, diffusion derived vessel density; EPI, echo planar imaging.