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Reply:

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REPLY:

We would like to thank Patel et al for their insightful comments regarding our research[1] and how it fits in with their own earlier findings.[2] However, we do not think that the findings of the study that Patel et al have referenced[2] are at odds with our own, but rather are complementary. While there are similarities across the 2 publications, the research questions have subtle-but-important differences, and examined 2 different potential roles of radiogenomics.

A fundamental difference between our studies is in how the key patient cohort was selected. Patel et al identified tumors with discordance between the imaging features and 1p/19q fluorescence in situ hybridization (FISH) results[2] on the basis of the premise that radiogenomics can be used to identify tumors in which molecular testing results should be questioned. We wholeheartedly agree with this concept and have previously highlighted this as one of several ways in which radiogenomics can add value for patients.[3,4] In addition to occasional inaccuracies of the testing methods themselves, histology is also dependent on the quality of the sample. Even sequencing can produce false-negative results if there are few tumor cells in the sample.[5]

In contrast, our study started with the molecular testing diagnosis. We targeted tumors with 1p- or 19q unideletion because we thought that these might have a higher likelihood of a false-negative 1p/19q result.[1] If we had found imaging appearances suggesting 1p/19q codeletion in a substantial portion of our cohort, it might have suggested value in repeating 1p/19q testing for all unideleted tumors. As it turns out, our results suggest that repeat 1p/19q testing is not warranted as a default, but we do not suggest that testing should not be repeated if there is discordance with imaging, because this issue was not assessed in this study. Additionally, we have not implied that the pathologist should consider only 1p/19q results when distinguishing astrocytomas and oligodendrogliomas.

Ultimately, it is clear that both of our groups think that the addition of imaging features has the potential to positively influence patient management, compared with relying solely on histology. We agree that additional testing should be considered when histology and imaging findings are discordant. Furthermore, we suggest that correlating histology with imaging is relevant to not only 1p/19q FISH but also other molecular markers, other molecular testing methods, the determination of histologic grade,[6] and even the overarching histologic diagnosis of a glioma versus another disease entity. Indeed, such correlation is important across many areas of radiology.

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