ENDOSCOPY

Confocal laser endomicroscopy enables *in vivo* VEGF imaging

Molecular imaging of vascular endothelial growth factor (VEGF) might soon be feasible in patients with gastrointestinal cancer, report Foersch and colleagues.

Confocal laser endomicroscopy (CLE) is used to diagnose cancer in real-time, *in vivo* histological examinations of the gastrointestinal tract; however, the current technique involves tissue staining with nonspecific fluorescent dyes, such as fluorescein. Foersch *et al*. show that CLE can be used to visualize the expression and subcellular localization of tumor markers, such as VEGF, by using fluorescence-labeled antibodies. VEGF is essential for angiogenesis in both healthy and malignant tissue, with high levels observed in the latter, and is a therapeutic target in gastrointestinal cancers.

After application of fluorescence-labeled anti-VEGF antibodies, the researchers used a hand-held CLE probe to scan tumors *in vivo* in two rodent models of gastrointestinal cancer ($Apc^{Min/+}$ mice and a xenograft model) as well as tissue samples from patients with colorectal cancer. A high proportion of $Apc^{Min/+}$ and xenograft tumors displayed a strong, cytoplasmic VEGF signal. Healthy tissue, by contrast, exhibited little or no VEGF expression. The *in vivo* imaging results correlated well with those of *ex vivo* histopathological examination.

"Up to now, molecular imaging has been performed only on biopsy samples from humans," notes Martin Goetz, corresponding author of the paper. "The next step is to use the technique in patients *in vivo*. CLE could also potentially be used to predict responses to targeted therapy for colorectal cancer," he says.

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