

**Techniques to facilitate endoscopic identification of neoplasia  
(Optical/digital Chromoendoscopy using narrow band imaging: NBI)**

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In the recent 10 years, endoscope systems have dramatically progressed due to the rapid development in charge coupled device (CCD) chip technology, allowing video-endoscopy to be performed using new powerful high-resolution video endoscopes for standard endoscopy during routine examinations. The technology of the narrow band imaging (NBI) system is based on modifying the spectral features by narrowing the bandwidth of spectral transmittance using various optical filters. Since 1999, we have been developing original NBI system with support from a Grant for Scientific Research Expenses. With regard to colorectal lesions, surface structure and capillary enhancement using the NBI system are helpful both for differentiating neoplasia from non-neoplasia and visualizing neoplasia by improved contrast. In our pilot study, the accuracy of endoscopic diagnosis was 79.1% in conventional colonoscopy and 93.4% in NBI colonoscopy. It was similar to that of chromoendoscopy. Capillary enhancement contributed to visualizing the i) vessel network of the mucosa and ii) contrast between lesion and adjacent mucosa. These features were significantly more apparent using NBI colonoscopy over standard colonoscopy. Contrast enhancement of the lesion made disruption of the normal vessel network in colonic lesions obvious and improved the visualization.

The NBI system has a special feature allowing invisible endoscopic findings to be more visible without any dye solution. Therefore, we propose a term of "optical/ digital chromoendoscopy" by NBI system and hope that this instrument will become the standard in endoscopy in the 21<sup>st</sup> century.