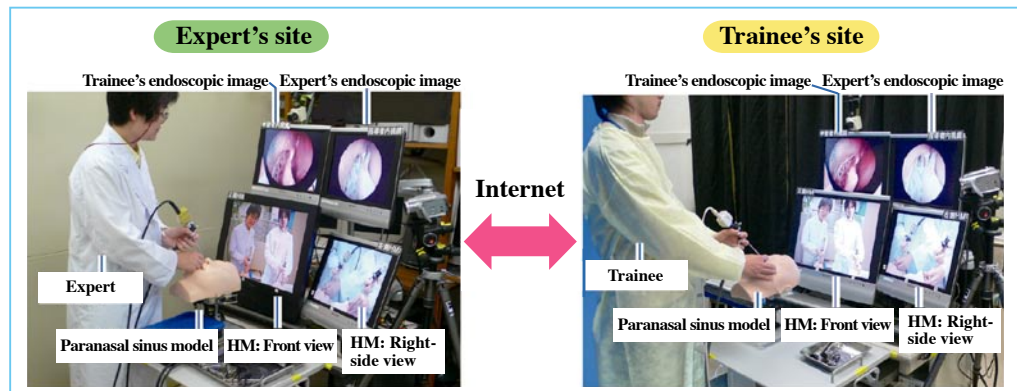


An endoscopic surgical skill training system using HyperMirror

We have developed a surgical skill training system for endoscopic paranasal sinus surgery which supports remote training and self-teaching. The key technologies of this system are HyperMirror (HM) and precise models of the human paranasal sinuses. HM is a virtual mirror wherein one's own reflection and a remote partner's reflection are displayed as if they are standing side by side. During training in surgery, the instant feedback from HM enables the trainee to clearly see the differences between his own movements and those of the remote expert.



Remote training system of manual skills in endoscopic paranasal sinus surgery

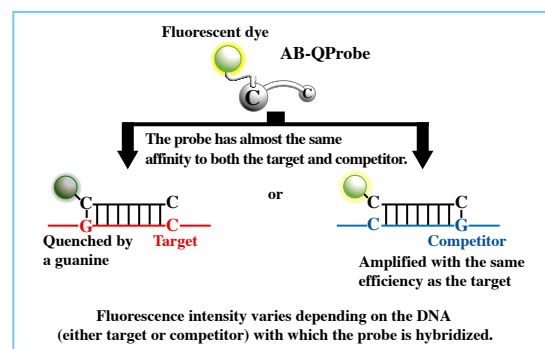
Toru Kumagai

Institute for Human Science and
Biomedical Engineering
kumagai.toru@aist.go.jp

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A new method for a quantitative analysis of DNA

A novel technique for a simple, rapid, and reliable quantitative analysis of specific DNA sequences was developed. The technique uses an alternately binding quenching probe that binds to either the gene of interest (target) or an internal standard (competitor), in combination with loop-mediated isothermal amplification (LAMP). The difference in quenching abilities of target and competitor DNAs leads to quantitative analysis and the technique was named alternately binding quenching probe competitive LAMP (ABC-LAMP). We quantified *amoA* gene, as a model target, by ABC-LAMP and real-time PCR. The accuracy of ABC-LAMP was similar to that of real-time PCR. ABC-LAMP also enables the accurate measurement of the gene in the presence of DNA amplification inhibitors such as humic acid and urea which lower the values measured by real-time PCR.



Schematic presentation of ABC-LAMP

Naohiro Noda

Institute for Biological
Resources and Functions
noda-naohiro@aist.go.jp

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