

# Abstracts of the 2007th Maruyama Memorial Lectures of the 76th Annual Meeting of the Medical Association of Nippon Medical School

Date: September 6, 2008 Place: Nippon Medical School

## Abstracts of the 2007th Maruyama Memorial Research Fund Prize Memorial Lecture (1)

### Study of MicroRNA Expression Profiles of Esophageal Cancer

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MicroRNAs (miRNAs), which are “tiny” RNA molecules (approximately 22 nucleotides in length), were long thought to be “junk” RNA because they were transcribed from genomic DNA that does not encode information for making proteins. Now, miRNAs are believed to be important posttranscriptional molecules that can regulate the expression of complementary messenger RNA targets<sup>1,2</sup>; miRNAs have been associated with a variety of physiological and pathological events<sup>3-5</sup>. We are now studying miRNA expression profiles of esophageal cancer. According to the cancer statistics of the Foundation of Cancer Research (<http://www.fpcr.or.jp/publication/pdf/statistics2008.pdf>), the esophageal cancer death rate in Japan is 4.8% (15.4 deaths/100,000 persons) among males and 1.3% (4.17 deaths/100,000 persons) among females. Thus, approximately 10,000 persons die of esophageal cancer each year in Japan. Although comprehensive treatment, including surgery, chemotherapy, and radiotherapy, contributes to the yearly improvements in the survival rate of patients with esophageal cancer, esophageal cancer remains a cancer with an extremely poor prognosis. In Japan, more than 90% of esophageal cancers are squamous cell carcinoma; in Western countries, in contrast, 50% of esophageal cancers are adenocarcinomas. We focus on the miRNA expression profiles of squamous cell type esophageal cancer to reveal the oncogenic mechanism through the posttranscriptional miRNA pathway. The purposes of this study were as follows: 1) miRNA expression profiling of squamous cell esophageal cancers to identify esophageal-cancer-specific miRNA signatures for a new class of diagnostic and prognostic biomarkers; and 2) clarifying the functional role(s) of miRNAs in esophageal cancer. Our preliminary studies suggest that some miRNAs (e.g., *MIRN21*) are promising biomarkers associated with esophageal cancer (Akagi et al. manuscript in preparation). Our miRNA study should provide new information on esophageal cancer. This study was supported in part by the Maruyama Memorial Research Fund of Nippon Medical School.

#### References

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