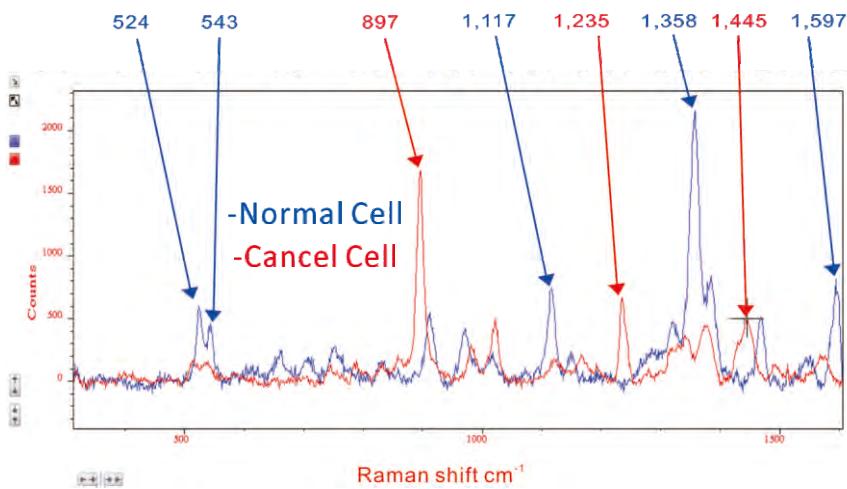


● Identification of Cancer and Normal cell of Oral by MRI Micro Raman Spectrometer

Protein phosphorylation in particular plays a significant role in a wide range of cellular processes. Its prominent role in biochemistry is the subject of a very large body of research. Phosphorylation turns many protein enzymes on and off, thereby altering their function and activity. The oral cancers may originate in any of the tissues of the mouth, and may be of varied histologic types: teratoma, adenocarcinoma derived from a major or minor salivary gland, lymphoma from tonsillar or other lymphoid tissue, or melanoma from the pigment-producing cells of the oral mucosa. There are several types of oral cancers which have different functional groups. Raman can play the important role in detecting various functional groups and then differentiate cancer cell from normal cell easily.



Human Cancer and Normal Oral Cells are acquired under agreement of patients in hospital and detected via PTT Micro Raman system with 633nm laser to measure both cells. Different peaks are revealed between Cancer and Normal cells. For example, 1) In Peak $524, 543\text{cm}^{-1}$ of both cells, Normal Cell shows higher peak than Cancer cell; 2) Peak 897cm^{-1} is from 923cm^{-1} (Normal Cell) shift to 897cm^{-1} (Cancer Cell); 3) In Peak $1,235\text{cm}^{-1}$, Positive peak show in Cancer Cell but lack in Normal Cell; 4) In Peak $1,117\text{cm}^{-1}$, Normal Cell show positive peak in contrary to Cancer Cell with no or shift and weak result; 5) In Peak $1,358\text{cm}^{-1}$, Normal Cell show positive peak in contrary to Cancer Cell with no or shift and weak result; 6) In Peak $1,597\text{cm}^{-1}$, Normal Cell also show positive peak in contrary to Cancer Cell with no or shift and weak result. In Conclusion, we can easily tell the differences between Normal and Cancer Cells via Raman Shift initially.

System Specification

Excitation Source	473,488,532,633,785,1064nm
Power	50~300mW or higher on request
Sensitivity in counts	At least 16,000 counts/sec @ 532nm test by Si wafer
Integration time	1.1ms-600s
Visible Image	Auto-exposed 9M pixels real-time image with scale
Dimension	195x195x130 mm (not including objective)
Operation	peak/FWHM searching, Spectra Overlaid, Kinetic, Baseline Correction, 3D Spectra, Zoom-in, Raman calibration, Autosave and history functions, Quantitation

