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## Image processing

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In our study, we are using Varian Medical Systems radiotherapy equipment. Digital Imaging and Communications in Medicine (DICOM) is most important part for imaging import. Other radiological imaging equipment such as DICOM is used as simulator machine where picture archiving and communication systems PACS is used. In our Treatment Planning Systems (TPS), we are fully able to use DICOM. DICOM is a standard for handling, storing, printing, and transmitting information in medical imaging. DICOM is dependent on file formatting and a network communications protocol. All modern medical imaging systems, like X-Rays, Ultrasounds, CT, MRI, and PET-CT are compatible of DICOM and we are using it extensively. File formatting is first part of DICOM where doctor or related personnel are able to see radiological image, the patient information, acquisition data and the second part is networking protocol systems where physician can search for imaging studies in their archive and restore imaging studies to the workstation in order to display it.

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## Label enhanced SPR applied to the analysis of small molecules and biomolecules

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Label Enhanced Surface Plasmon Resonance (LE-SPR) is a new concept which greatly improves the sensitivity and specificity of SPR analysis. LE-SPR can be used directly on standard Biacore™ instruments and does not require any modification of the existing SPR instrument hardware. LE-SPR is based on labelling of one interactant with specialized dye labels combined with software based curve shape analysis of the entire SPR dip curve. An extremely sensitive and fully specific measure of the binding of dye labeled compound is obtained and plotted as an enhanced sensorgram or 'epigram'. At first sight, the label enhanced concept seems not to fit into the label free paradigm. However, by selecting a competitive assay format where a label free analyte competes with a dye labeled analogue for binding to the surface, the interaction between the analyte and the surface is truly label free, while the SPR readout is label enhanced. By applying well established methods of competitive analysis, both the kinetics constants and the affinity of the label free analyte can be accurately determined.

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