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## Laser spectroscopy and laser spectrometry for elemental imaging of cancer tissues

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It has been shown that cancerous tissues change the chemical composition of cells [1]. These changes in elemental composition can be observed using Laser-Induced Breakdown Spectroscopy (LIBS) or Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS), where imaging of biotic (e.g., C, P, Ca, Mg) and trace (e.g., Zn, Cu) elements provide information about the distribution of soft tissue elements and, consequently, the location of cancerous tissue.

This paper deals with a correlative study using LIBS and LA-ICP-MS in a sample of healthy human skin, four samples of malignant tumours (squamous cell carcinoma, malignant melanoma, basal cell carcinoma, and epithelioid angiosarcoma), and one sample of a benign tumour (pigmented nevus). Analysis was performed using both techniques for all these samples, and spatial distributions of selected elements were constructed. This work aims to show the potential of correlation of data obtained from both analytical methods, which could be used for the possible diagnosis of cancer as a complementary technique to classical histological examination.

LIBS, LA-ICP-MS, cancer

Kiss et.al., *Journal of Analytical Atomic Spectrometry*, 36, pp. 909-916 (2021)