

Medical application by using wax physisorption kinetics and Fourier transform infrared spectral imaging

Wax physisorption kinetics with FTIR (WPK-FTIR) imaging provides a glycol-histopathological imaging analysis for differentiating the abnormal glycosylation within medical tissue sections and cell lines, utilizing n-alkanes ($n\text{-C}_n\text{H}_{2n+2}$) with varied carbon number (CN) from 20 to 34 and beeswax as wax adsorbents for targeting similar longitudinal length of glycans of glycoconjugates anchoring in the medical sample surface based on chemical similarity principle. WPK-FTIR is an in-situ non-destructive method of examining tissue sections for cancer screening and prognosis prediction for chronic kidney disease by profiling aberrant glycans covalently attached to both glycoconjugates anchored in tissue sections. Currently, WPK-FTIR can screen for ten kinds of cancer disease, including colon cancer, breast cancer, ovary cancer, cervical cancer, oral cavity cancer, gastric cancer, skin cancer, prostate cancer, intestinal neuroendocrine tumour, and brain cancer.

References

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