

Circulating histone signature of human advanced stage solid malignancies: A pilot study

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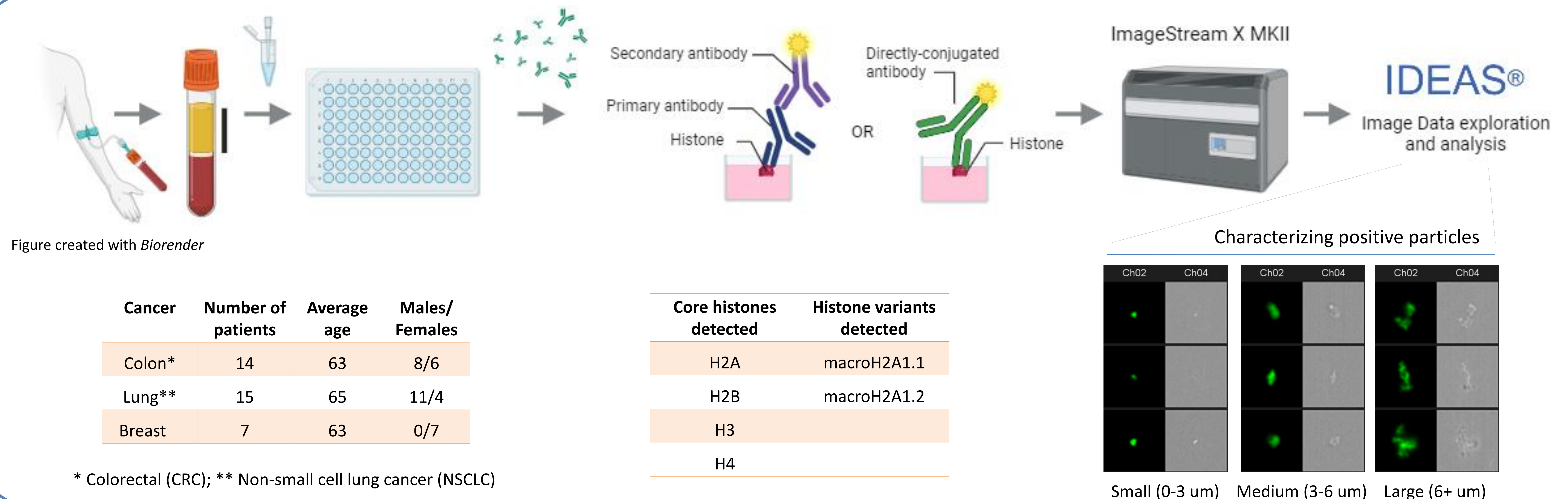
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Introduction

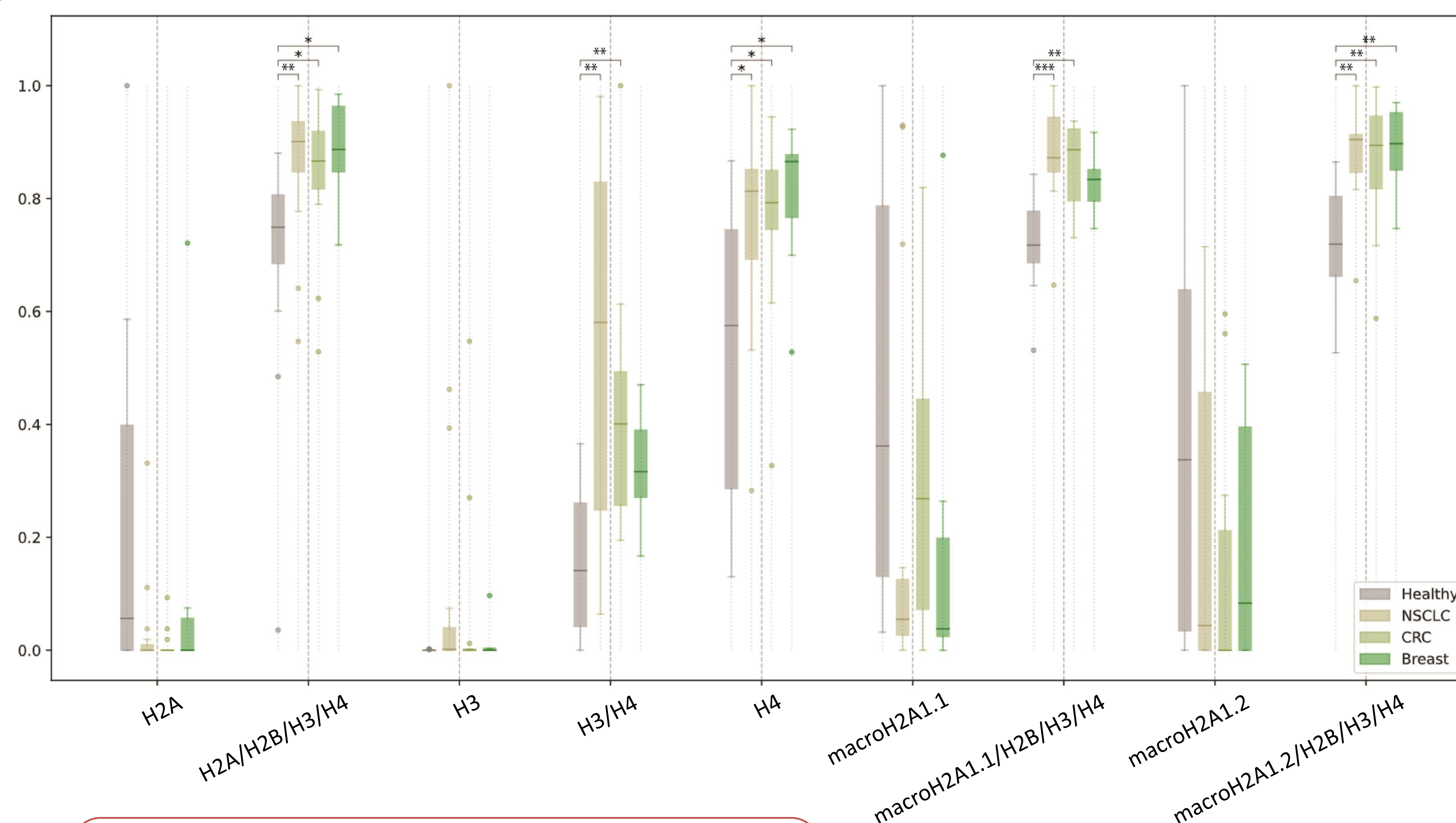
Cancer is among the leading causes of death worldwide, accounting for more than **20 million deaths every year**. Cancer is often detected at an **advanced** stage when the disease is no longer restricted to the primary affected organ. The gold standard diagnostic tool for solid malignancies is tissue biopsy, an **invasive** procedure that captures only a **small section of the cancer heterogeneity**, requires a significant **processing time**, and presents a **risk** for disease progression. There is an urgent need to provide novel **non-invasive** approaches to **detect and monitor** the disease. Liquid biopsies have shown great promise. Nevertheless, liquid biopsies have not yet entered the routine clinical practice. We have developed a **novel fast, non-invasive liquid biopsy** approach based on **circulating histones and histone complexes** detected in the plasma of adult cancer patients.

Methods



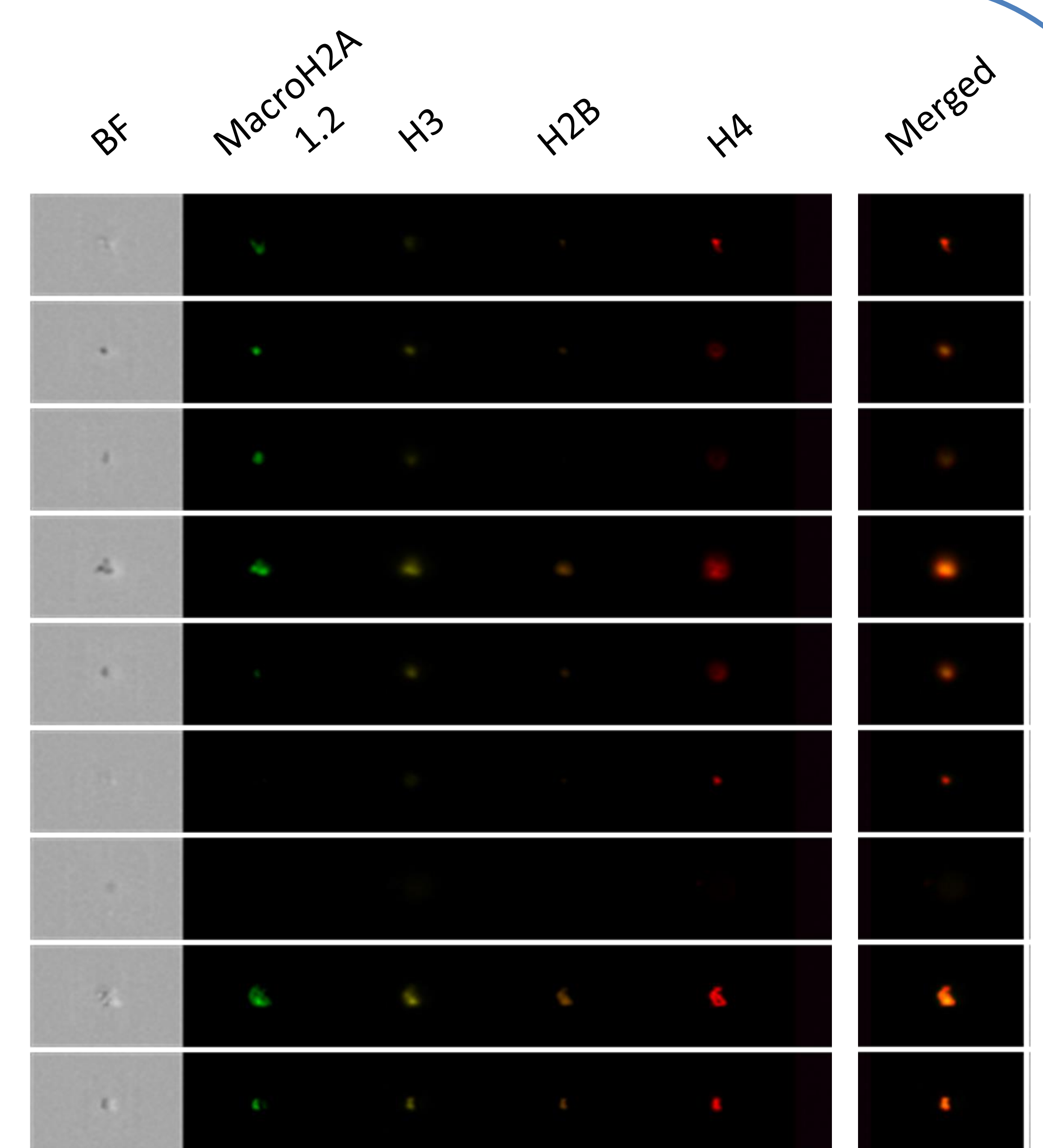
* Colorectal (CRC); ** Non-small cell lung cancer (NSCLC)

Results



Upregulated in CRC, NSCLC, and breast cancer:
- H2A/H2B/H3/H4
- H4
- macroH2A1.2/H2B/H3/H4

Upregulated in CRC and NSCLC:
- H3/H4
- macroH2A1.1/H2B/H3/H4



Multiplex histone imaging in plasma. Representative images. BF – bright field

Conclusions

Circulating histones and histone complexes are **differentially** present in the plasma of patients with **advanced solid malignancies** and might hold diagnostic value for cancer detection and monitoring.

Future directions

