The expression of metabolic pathways associated with the production of breath biomarkers have been found in non-tumour-associated extracellular space.

The potential of this approach was substantiated in this study by demonstrating the differential expression of β-glucuronidase in neoplastic cells and in the tumor microenvironment (TME) components of lung samples collected after administration of eVOC probe. ReCIVA breath samples were collected in 6 timepoints, including 10 minutes up to 180 minutes after treatment.

Figure 4: Positive staining of the TME happened across main lung cancer histologies.

4. Conclusions

β-glucuronidase is upregulated in the TME of lung cancer cells across histological subtypes and cancer stages.

Administration of D5-ethyl-D-glucuronide as EVOC probe for the evaluation of β-glucuronidase had no SAEs and was well tolerated.

In a subset of individuals D5-ethanol can be detected on breath of humans after intravenous administration of D5-ethyl-D-glucuronide.

The successful phase 1 study lays the foundation for a phase 2 study designed to explore diagnostic performance of this innovative breath test approach for lung cancer.

Acknowledgements: Desirée Otero, Minerva Picon, all study subjects and all research staff of the participating hospitals.