QF-Pro® technology: Quantifying Functional Spatial Biology

QF-Pro® (Quantitative Function of Proteins) is a novel bio-imaging technology that **spatially quantifies protein function**, such as protein-protein interactions and protein post-translational modifications in **cells** and **fixed tissue (FFPE) samples**. QF-Pro® is based on a perfected and simplified version of the FRET/FLIM technology that has been tailored for ease-of-use in biology labs. It comprises the bespoke **Violet 3.0 imaging platform** and a versatile reagents' kit for FRET.

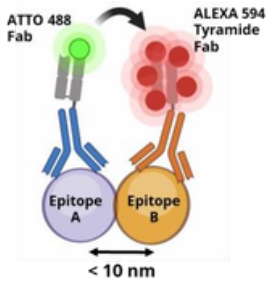
Principle of QF-Pro® technology: FRET/FLIM Imaging Easier Than Ever Before

- **High sensitivity** – linear continuous spectroscopic signal (lifetime) not based on intensity, and which does not saturate.
- **High specificity** – two-site detection assay operating within the 1-10nm distance range.
- **Amplification of the signal** - measurement of protein function in FFPE tumour sample notoriously difficult to analyse by immunofluorescence.
- **Easy to use reagent kits** containing every needed to perform QF-Pro® labelling.

	IHC/IF	Proximity Ligation Assay	QF-Pro®
Quantifies protein function	+	++	+++
Sensitivity	-	+	+++
Specificity	-	+	+++
Clinical Value*	+	-	+++

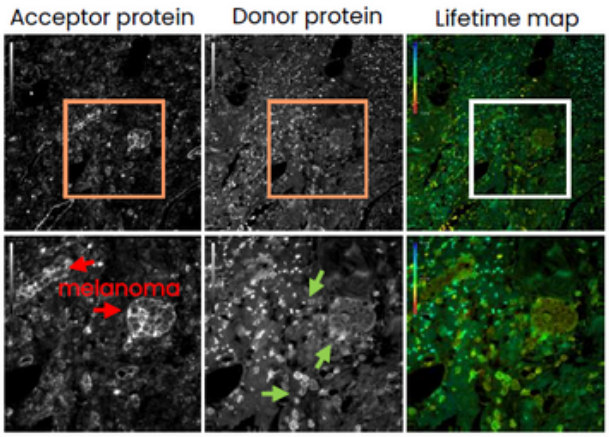
*For predicting response to a-PD-1/PD-L1 therapies in NSCLC

1 Labelling FFPE-tissue or fixed cells with your own primary antibodies and QF-Pro® secondary reagents



2 Acquisition and analysis with Violet 3.0. software

Spatial protein distribution and lifetime map



Applications and validated biomarkers

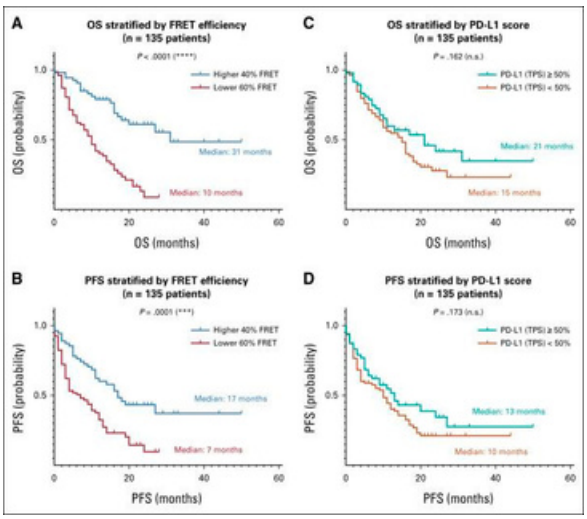
QF-Pro® not only enhances our understanding of biological pathways and **protein functional states** but also facilitates the **identification of new biomarkers** at single-cell resolution. Moreover, it enables deep phenotypic profiling in both cell and tissue models, providing early insights into drug mechanism of action and facilitating precise drug target engagement in tissues.

Protein-Protein Interaction States:
- PD-1/PD-L1
- CTLA-4/CD80
- TIGIT/CD155
- LAG3/MHCII
- TIM-3/Gal9
- HER2/HER3
- HER2/EGFR
- PKB/PDK1

Post-translational modifications:
- Akt/PKB phosphorylation (pT308)
- STAT3 phosphorylation (pS727 or pY705) PD-1 phosphorylation (pY248)

Translational Research:
- ADC/Target Interaction
- Protein Functional Dynamics

QF-Pro® predicts patient response to anti-PD-1/PD-L1 therapies



The current PD-1/PD-L1 QF-Pro® assay is published in the Journal of Clinical Oncology* and validated by the wider scientific community.

Using QF-Pro®, we have demonstrated that PD-1/PD-L1 interaction state, but not PD-L1 expression, was a better predictive of patient response to treatment and OS in NSCLC. Our proprietary technology revealed that patients with a higher PD-1/PD-L1 interaction experienced increased survival rates due to the correct therapeutic targeting of this immune checkpoint.

The adoption of QF-Pro® into clinical workflows can match patients to the correct ICI therapies at the correct time, reducing healthcare costs, burdens and future hospitalisations.

Functional Engagement of the PD-1/PD-L1 Complex But Not PD-L1 Expression Is Highly Predictive of Patient Response to Immunotherapy in Non-Small-Cell Lung Cancer. *Journal of Clinical Oncology*. 2023.

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