Understand Drug Resistance with Kinome Profiling

In the ever-evolving field of cancer treatment, drug resistance presents a major hurdle, diminishing the effectiveness of traditional therapies and adversely affecting patient outcomes. Addressing this challenge calls for innovative solutions in translational research, crucial for advancing treatment strategies and improving patient care.

Kinome Profiling for Drug Characterization

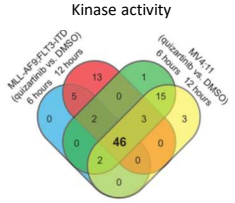
Kinome Profiling assays provide direct insights into the biological activity within cells, offering several advantages;

- **Real-Time Analysis:** Functional assays allow for observation of kinase activity in real-time, providing an in-depth understanding of cellular responses in example to treatment.
- **Physiological Relevance:** Kinase activity profiling provides a more accurate picture of kinase function and interaction in a native environment.
- **Predictive Power:** These assay can predict the efficacy of the response, helping to identify the most promising therapeutic agents.
- **Exploring Drug Resistance:** Kinome Profiling can pinpoint the specific mechanisms behind drug resistance, guiding the development of more effective strategies to counteract these adaptations

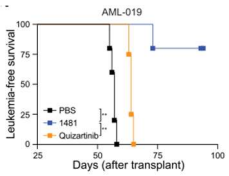
STK profiling identifies role of IRAK1/4 in adaptive resistance mechanism in AML[1]

Model for adaptive resistance in AML
- MLL-AF9;FLT3-ITP
- MV4:11

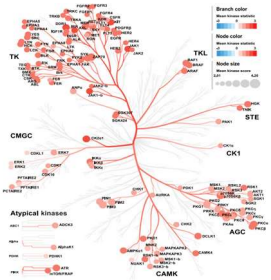
Kinase activity



Dual targeting of FLT3-IRAK1/4 overcomes adaptive resistance *in vivo*



KinomePro discovers SHP2 as additional target for MEKi combination therapy in MPNST[2]



Kinome Profiling: A Cutting-Edge Solution

We at **PamGene** have developed **a unique peptide-based microarray technology** for kinase inhibitor profiling offering significant advantages and important features:

- **Full-length kinases:** We can measure the kinase activity of full-length proteins from lysates of cell lines and tissues. This unique approach without using any recombinants mimics their physiological context.
- **Kinase activity-based:** Direct effects on kinases can be measured and linked to regulation of pathways.
- **Wide coverage:** We cover 380+ kinases in 1 full kinome screen.
- **Sensitive:** Only small amounts of protein input (0.5 to 5 µg per array) are required, thus making the assay more sensitive than alternative approaches.
- **No specific antibodies:** Data quality is independent of the specificity of individual phospho-antibodies

PamGene – sales@pamgene.com – + 31 (0) 73 615 80 80 – www.pamgene.com

Accelerate inhibitor characterization by taking advantage of PamGene's expert kinome profiling services

PamGene Kinome Profiling Service

We provide end-to-end research services in our ISO 13485:2016 certified labs in the Netherlands.
We assist throughout the process, from sample preparation to in-depth data analysis and interpretation, ensuring that you have the support you need at every step.

1. Contact us for an introduction and to discuss your research needs. Then we can determine together the best approach for your project.
2. Send us your samples, and we'll perform the kinase profiling analysis using our PamChip® technology.
3. Receive a detailed report from us, which includes bioinformatics analysis, data interpretation, and insightful recommendations for follow-ups. Our report aims to provide a comprehensive understanding of the outcomes of kinase profiling.

We have **extensive experience** working with a **wide range of cell types and disease models**, and our experienced team of scientists is committed to helping you achieve your research goals.

Contact our Service Team

Martijn Dankers - Contributed to the development of the PG platform, with over 20 years of experience in kinome profiling. **mdankers@pamgene.com**
Karlijn van Soest - Leading scientific research projects within PamGene **kvsoest@pamgene.com**

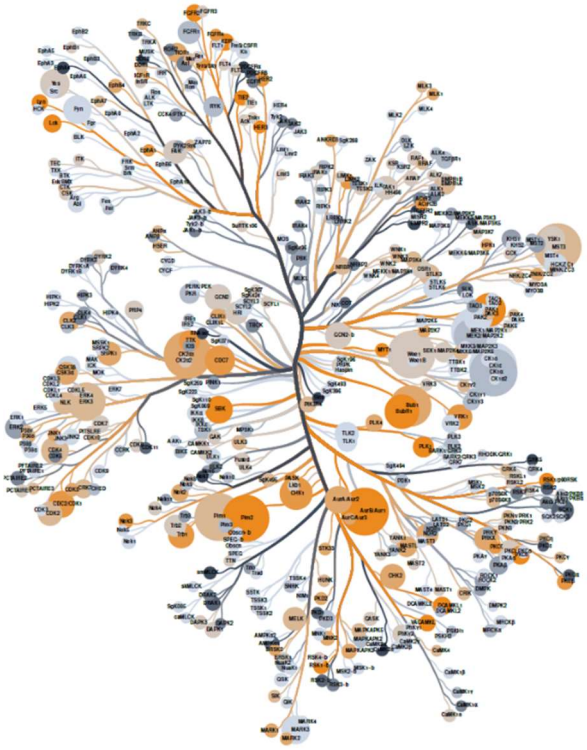
Scientific Validation of Kinase Profiling

With over 400 scientific publications the PamGene's kinase profiling technology has been extensively validated.

1.2019 *Science Translational Medicine* study demonstrated the assay's utility in uncovering mechanisms of adaptive resistance FLT3–mutant AML by examining integrative cellular kinase and gene regulatory network responses after oncogenic signaling blockade by FLT3 inhibitors. (Ref 1).

2. 2020 study in *Cancer Research* reinforced the value of kinase profiling in identifying novel combinatorial therapeutic targets for treatment in malignant peripheral nerve sheath tumors (Ref 3).

For a longer list of **publications** involving PamGene's technology, visit **pamgene.com/publications**



References:
K. Melgar, et al. Overcoming adaptive therapy resistance in AML by targeting immune response pathways
J. Wang et al. Combined Inhibition of SHP2 and MEK Is Effective in Models of NF1-Deficient Malignant Peripheral Nerve Sheath Tumors