

# Bioluminescent Kinase Profiling Systems For Characterizing Small Molecule Kinase Inhibitors

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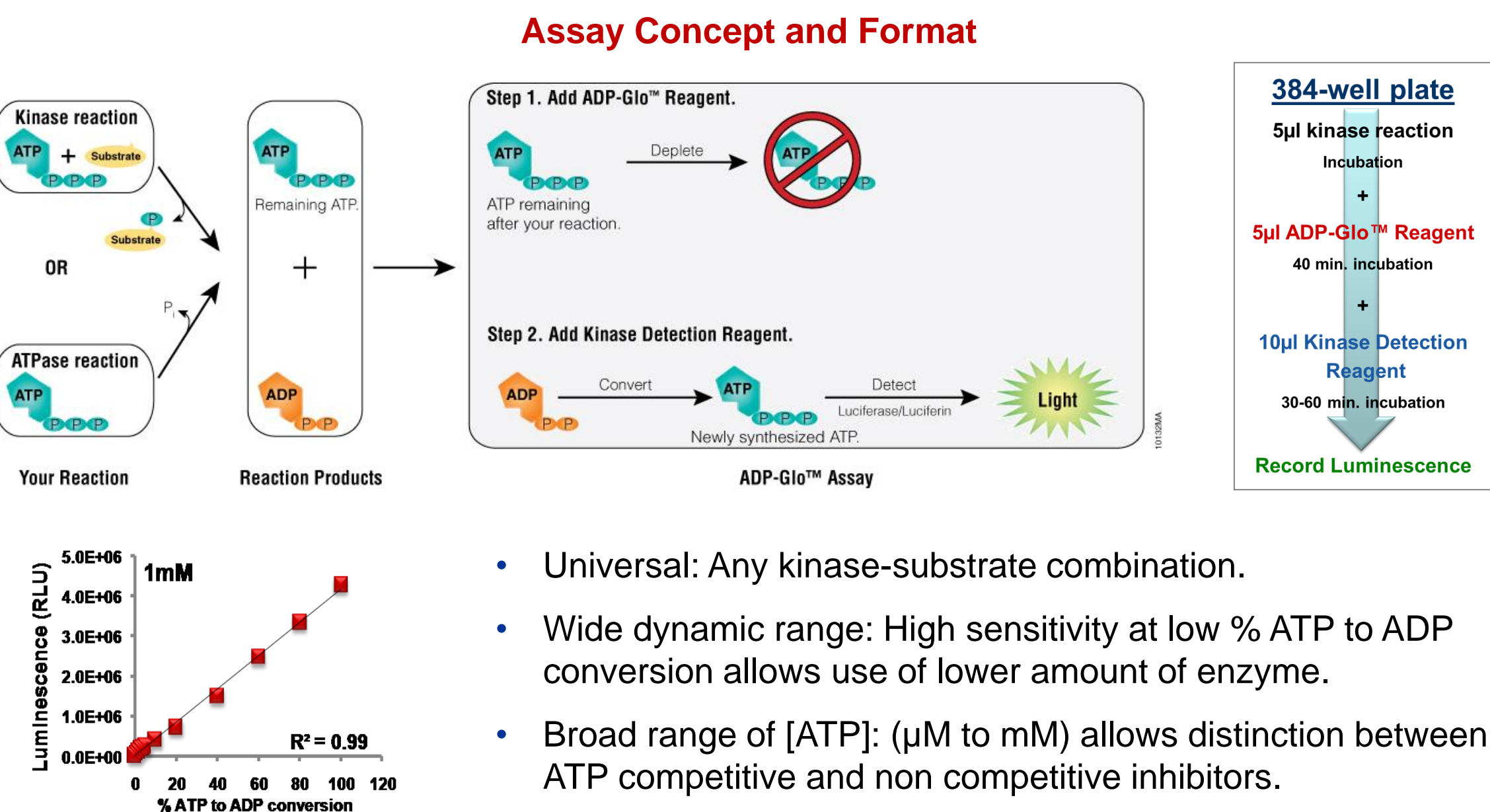
## 1. Introduction

In order to profile compounds against a broad panel of kinases, in-house profiling requires rigorous kinase assay development. Most importantly, it requires an optimization for each kinase in the panel, which can be costly and time consuming. On the other hand, outsourcing kinase profiling is fraught with obstacles such as requirements of agreements, long time to get results and lack of control over the whole process. Thus, a profiling system with simple and rapid in-house implementation would obviate such logistical inconveniences and concerns. We created new kinase profiling systems based on the luminescent ADP-Glo kinase assay platform. The kinase profiling systems have the following features and advantages:

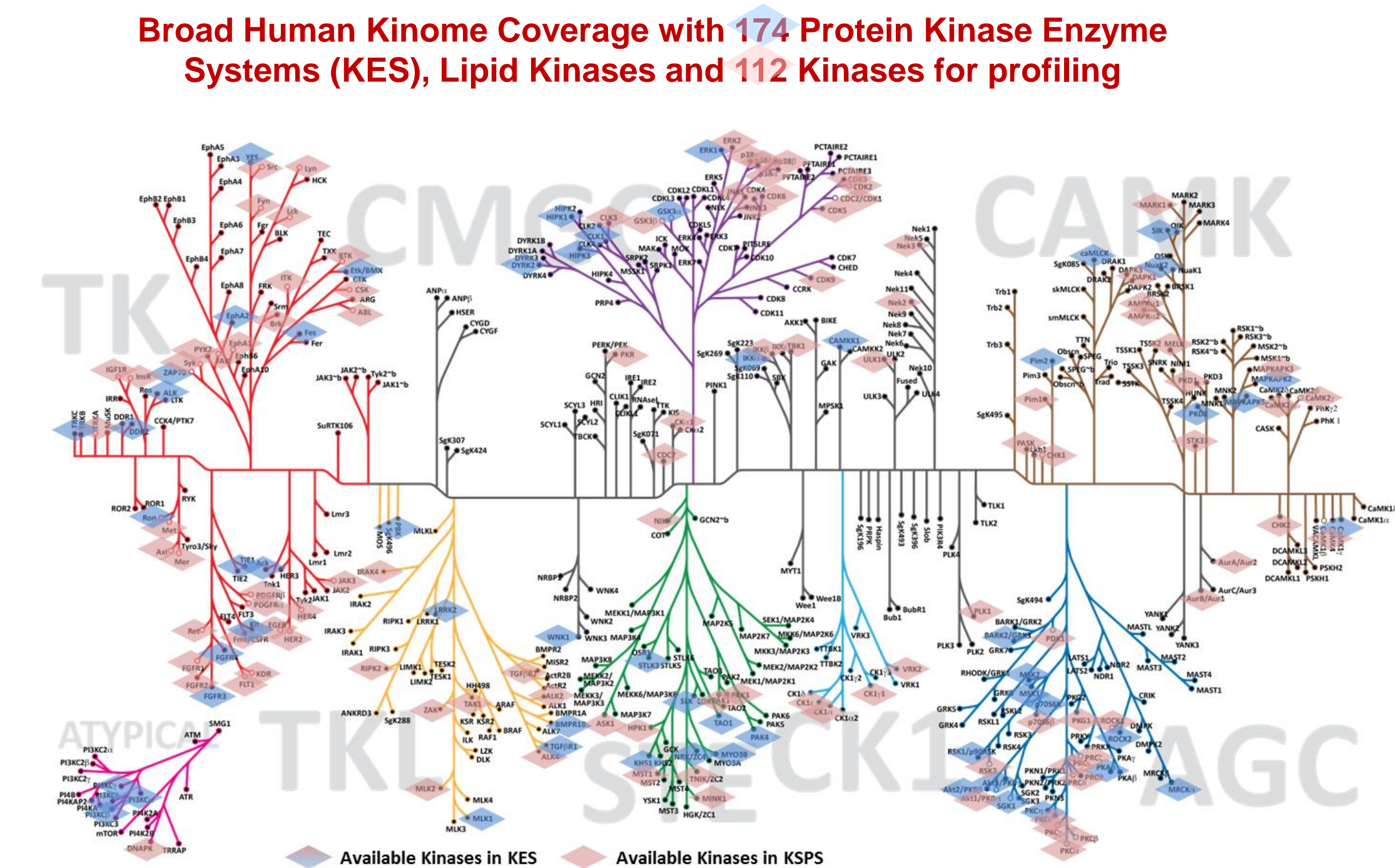
- Set of kinases organized by kinase families, presented in easy to use multi-well strips, and standardized for optimal kinase activity.
- The strip system provides flexible kinase inhibitor profiling, as each strip can be used to profile compounds at a single dose or used for a dose response against 8 kinases at once.
- Easily automated with fast and simple reaction assembly.

The data generated with this novel set-up are concordant with published inhibitor potency profiles produced by radioactivity assays. Using this technology we created profiles for 16 small molecules that are approved for different cancers and inflammatory diseases. Medicinal chemists and chemical biologists can easily adopt this novel approach for regular in-house kinase inhibitor profiling and gain more control over the data for fast progression into developing lead compounds.

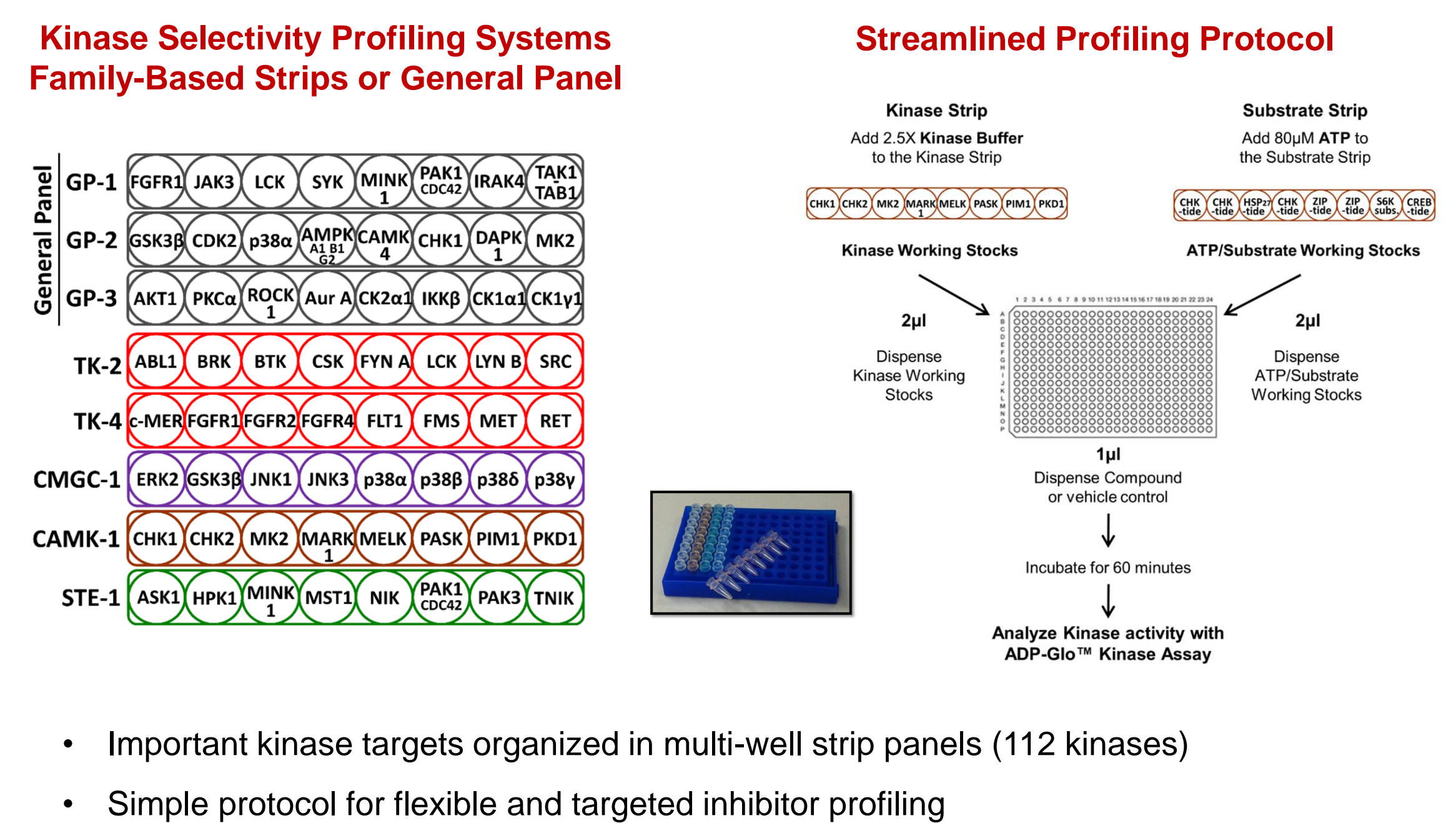
## 2. Positive Detection Assay for Product Formation



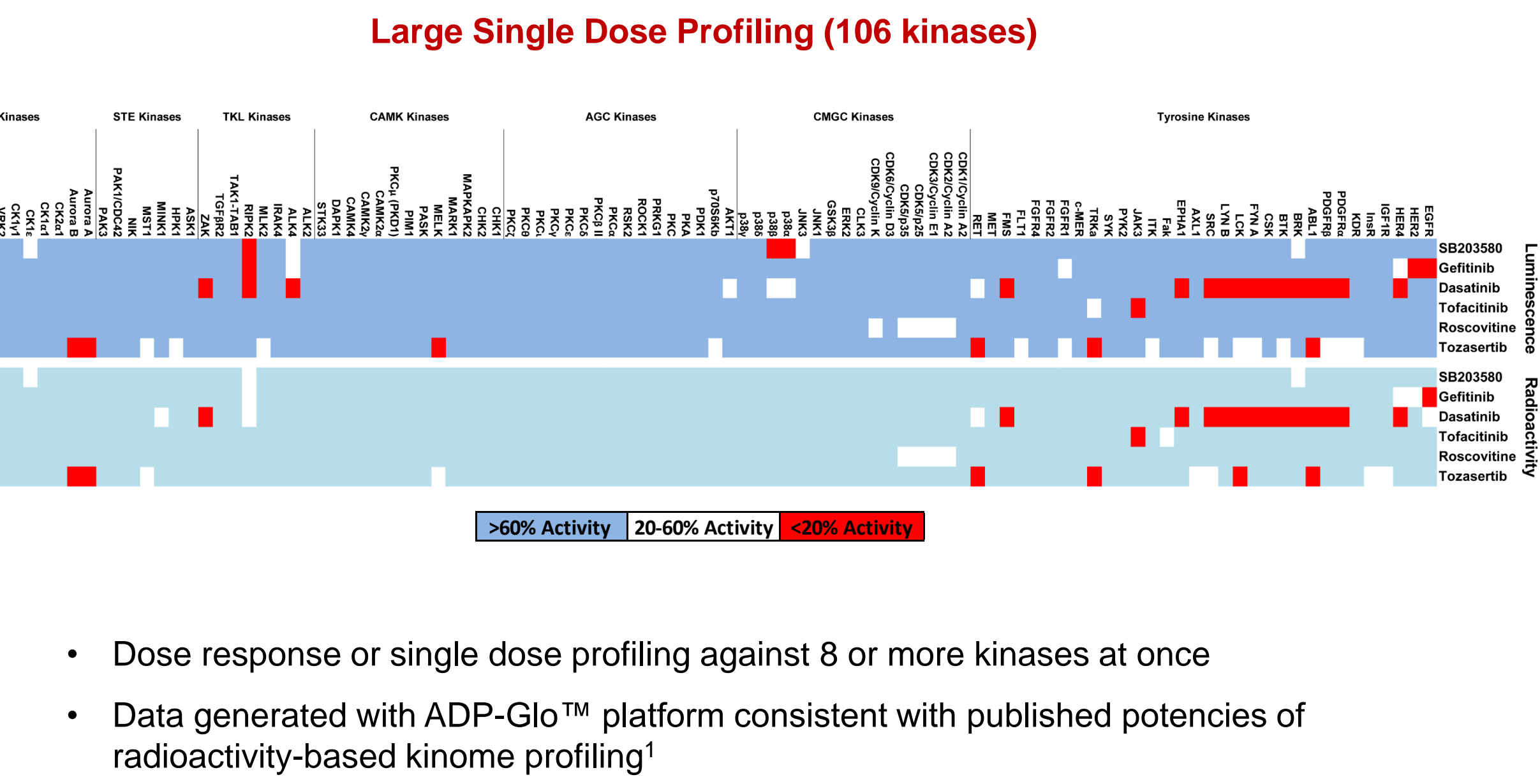
## 3. Promega Validated Kinase Panel Covers the Human Kinome



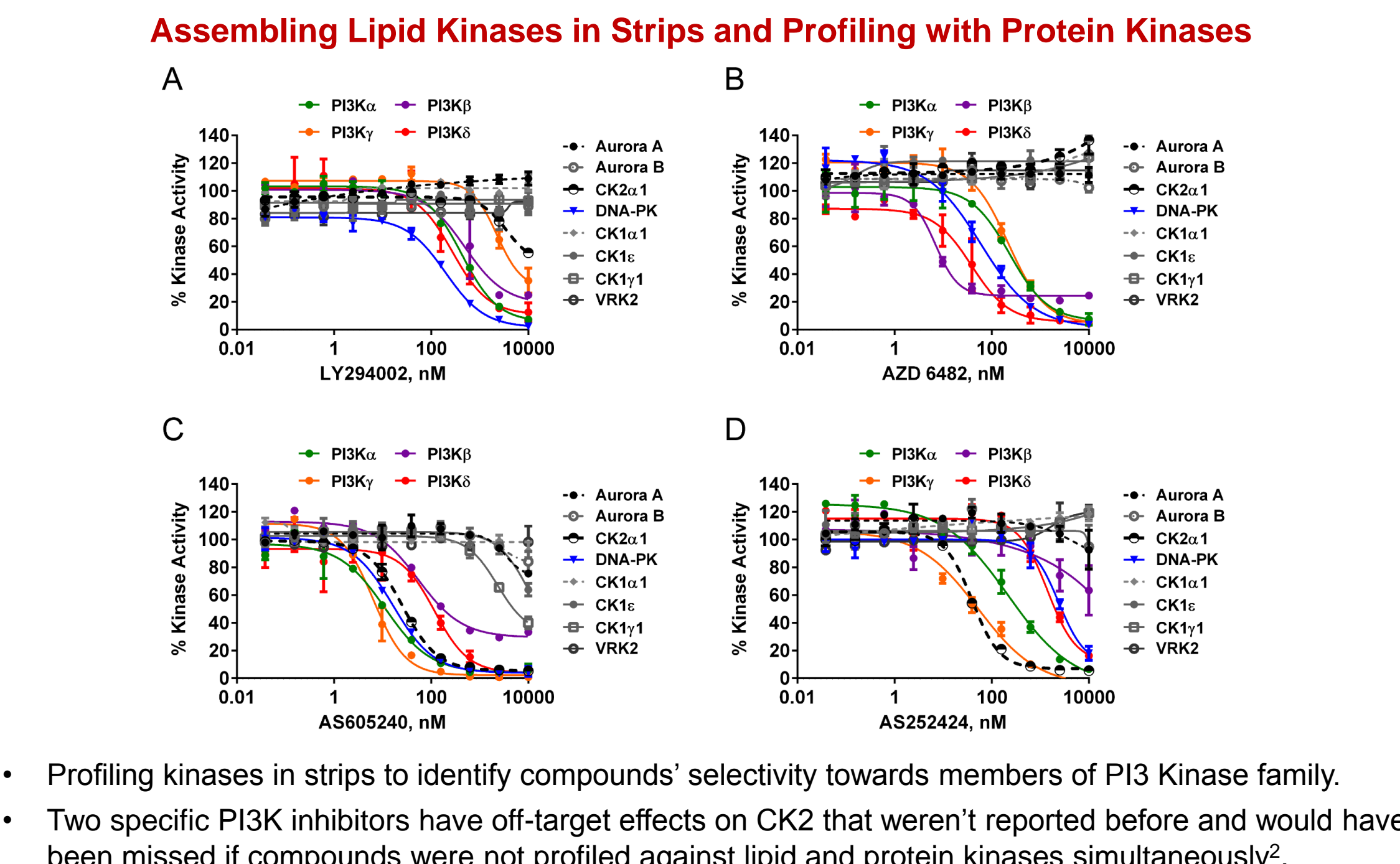
## 4. Kinase Strips Make Profiling Simple



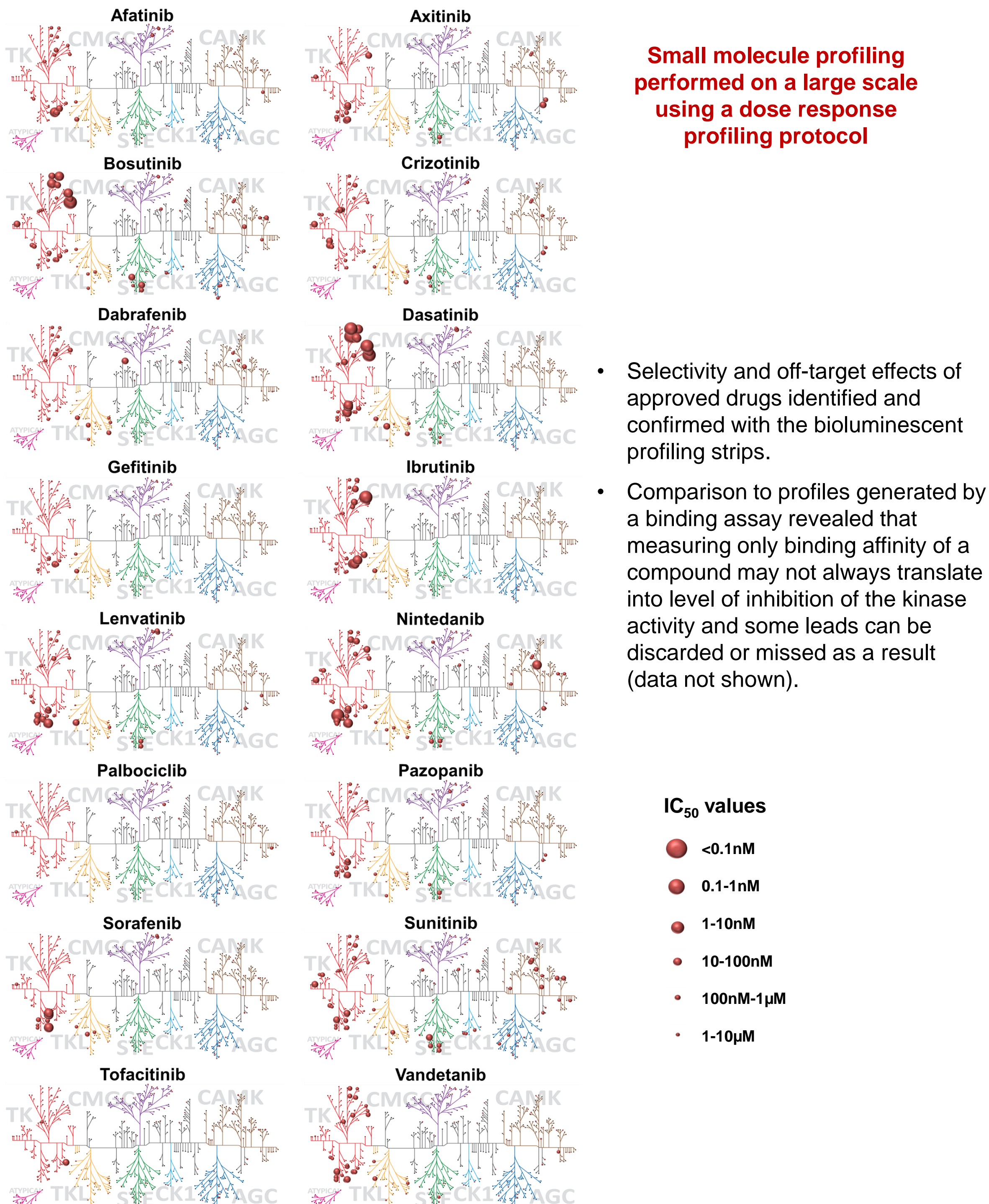
## 5. Enabling Small or Large Selectivity Profiles In-House



## 6. Simultaneous Compound Profiling Against Protein and Lipid Kinases



## 7. Creating Selectivity Profiles for Approved Drugs Using Kinase Strip-Tubes



## 8. Conclusions

**ADP-Glo™ Kinase Profiling Systems have the following advantages:**

- Fast and simple in house profiling: Two quick dilutions provide working stocks of kinase and substrate/co-factor solutions sufficient for 25 kinase reactions.
- Formatted strips provide access to eight kinases at a time: Kinases from singular kinase families are grouped together for more relevant selectivity profiles.
- One-time use design: Eliminating multiple freeze/thaw cycles ensures optimal kinase activity for each experiment.
- Optimized kinase activity for inhibitor profiling: All kinases have been optimized to provide optimal ADP production with >10-fold S/B.

1. Anastassiadis, T. et al; *Nat. Biotechnol.* 29 (2011), 1039-1045.  
2. Hennek, J. et al; *Analytical Biochemistry* 495 (2016), 9-20.