

# Developing and Embedding In-House Compound Management within Artios

Presented by Carl Haslam on behalf of the Compound Management Implementation Team

## Introduction

Design, Make, Test and Analyse (DMTA) screening requires the generation of compound assay ready plates (ARP) – a process that can be slow, costly and resource intensive.

- Negative impact on project cycle times/resource burden.

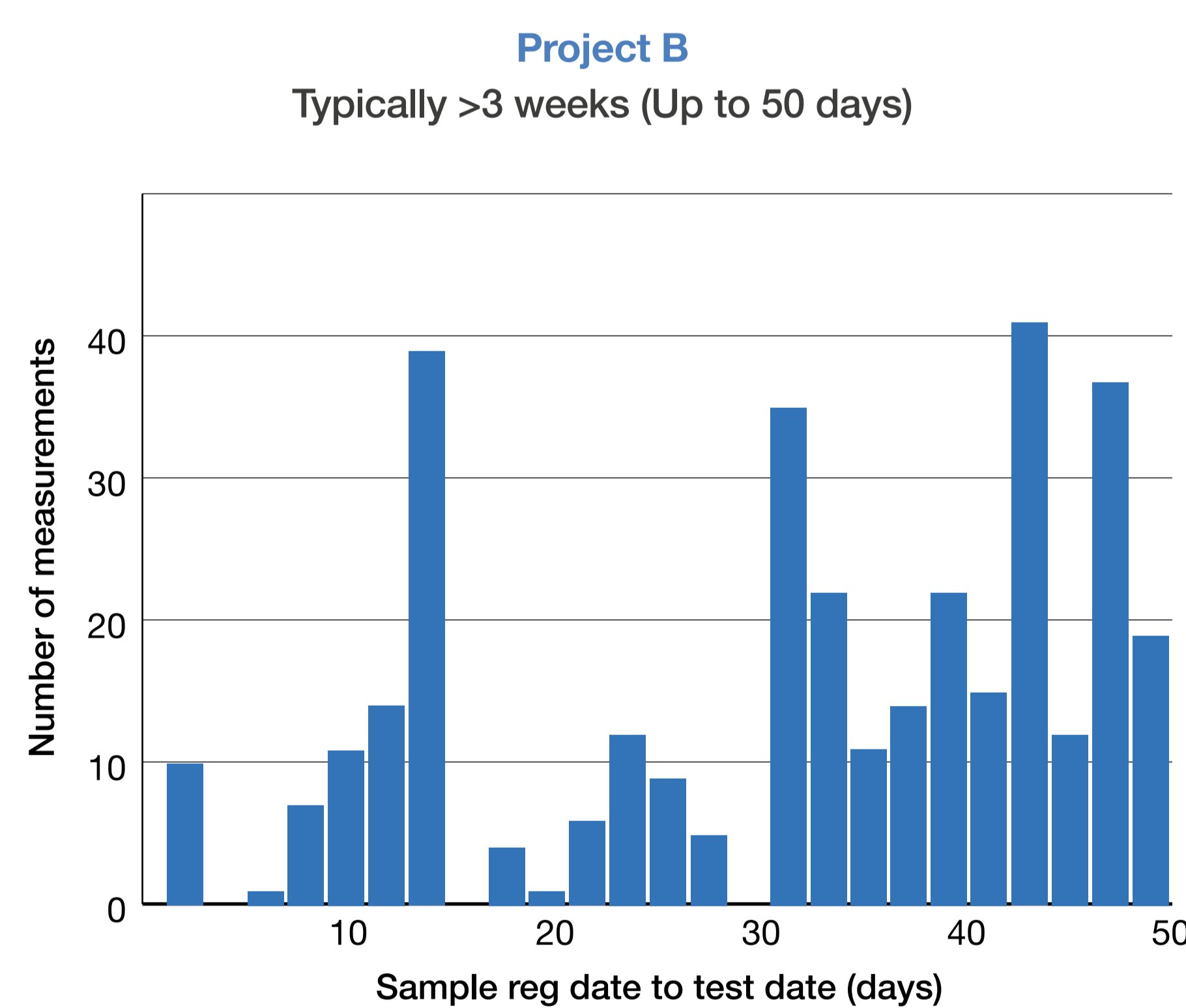
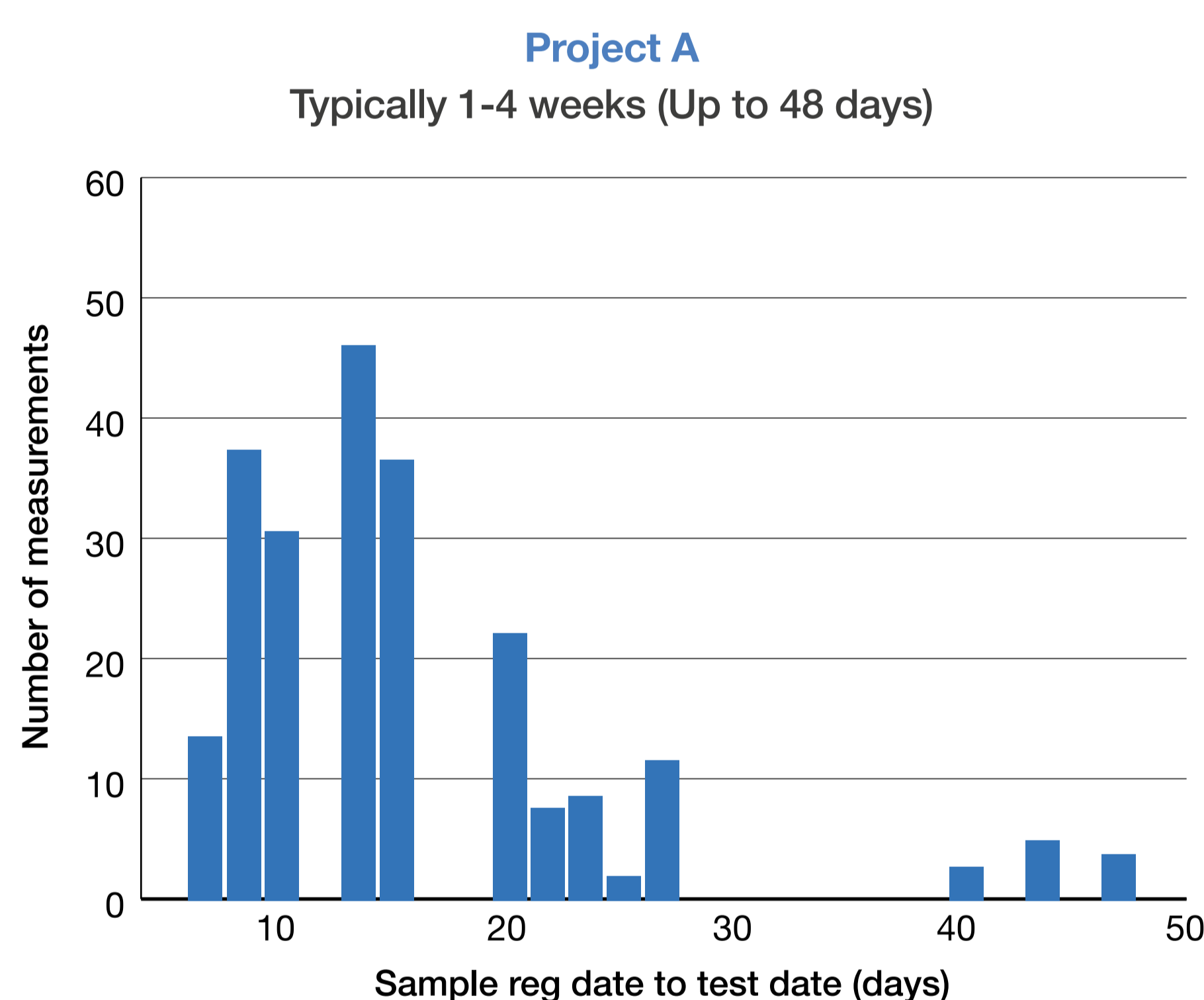
Using dedicated software and automation, we have developed in-house compound management (CM) for DMTA processing and plate generation:

- Audited and trackable process – increased sample/data integrity.
- Fully automated workflow for biochemical & cellular assays.
- Reduced cycle times/cost.
- Faster data reporting to drive decision making/more effective use of resources.

## Benefits of In-house CM Plate Supply

### External Plate Supply/Logistics

Legacy Sample Registration to Test date  
(Typically Assay Ready Plates from CRO)



### Cost of Assay Ready Plates

Legacy external and internal cost for plate generation

CRO (External)	Artios Legacy (Tecan D300e)	In-House CM
£600	£300	£35(*)

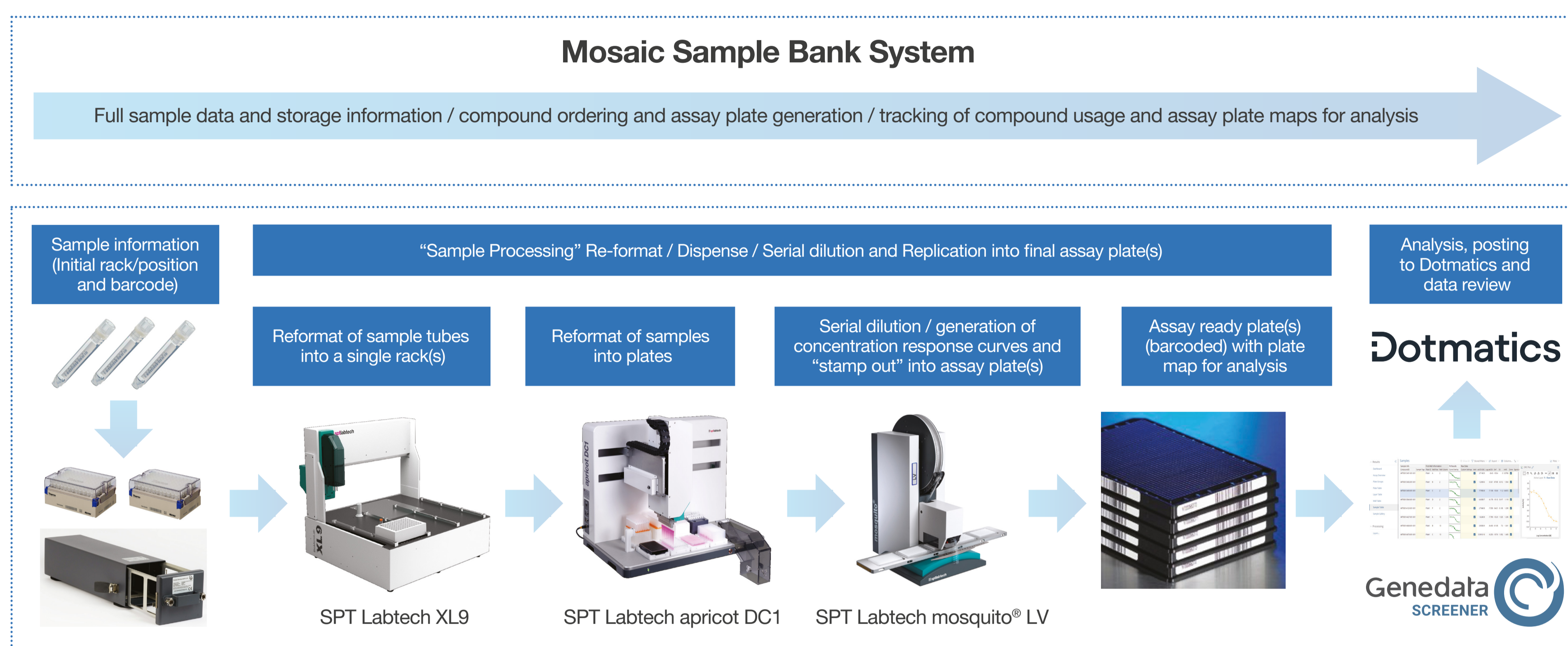
(Based upon 30 compounds per 384 well assay plate)

\*(following repaying of initial costs)

- Reduction in cycle times and cost due to direct supply to Artios.
- Increased sample control and tracking due to sample management system.
- Generation of assay plates for DMTA, Kinetic & Mechanistic formats.
- Automated workflows and analysis integration reduces human intervention.

## Artios In-House Compound Management Workflow

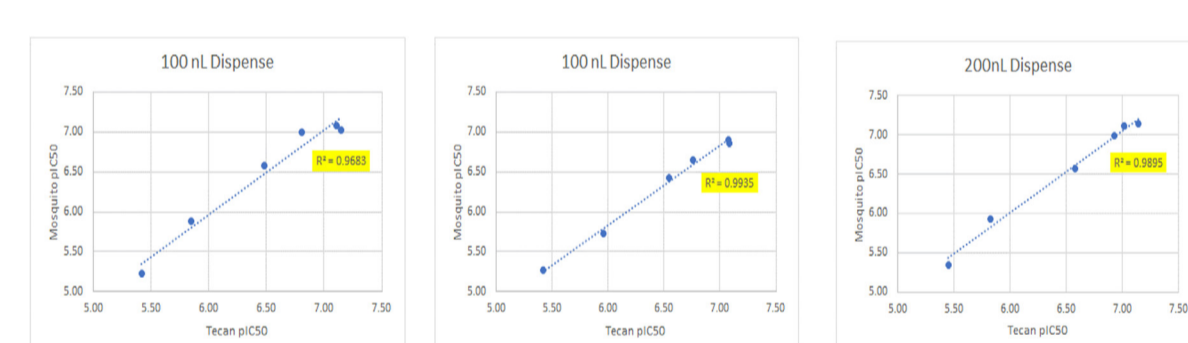
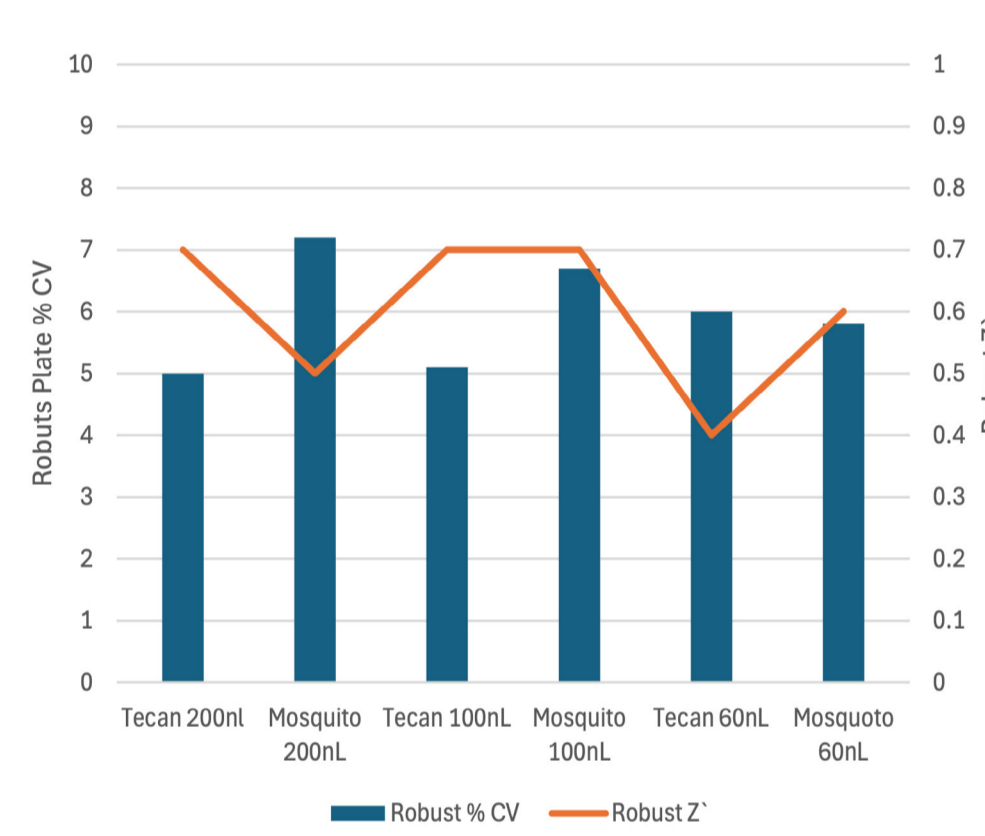
Compounds prepared as DMSO solutions and imported into Mosaic Sample Bank system/compound collection.



## CM Plate Generation Quality

Biochemical/cellular assays demonstrated comparable compound activity/assay quality.

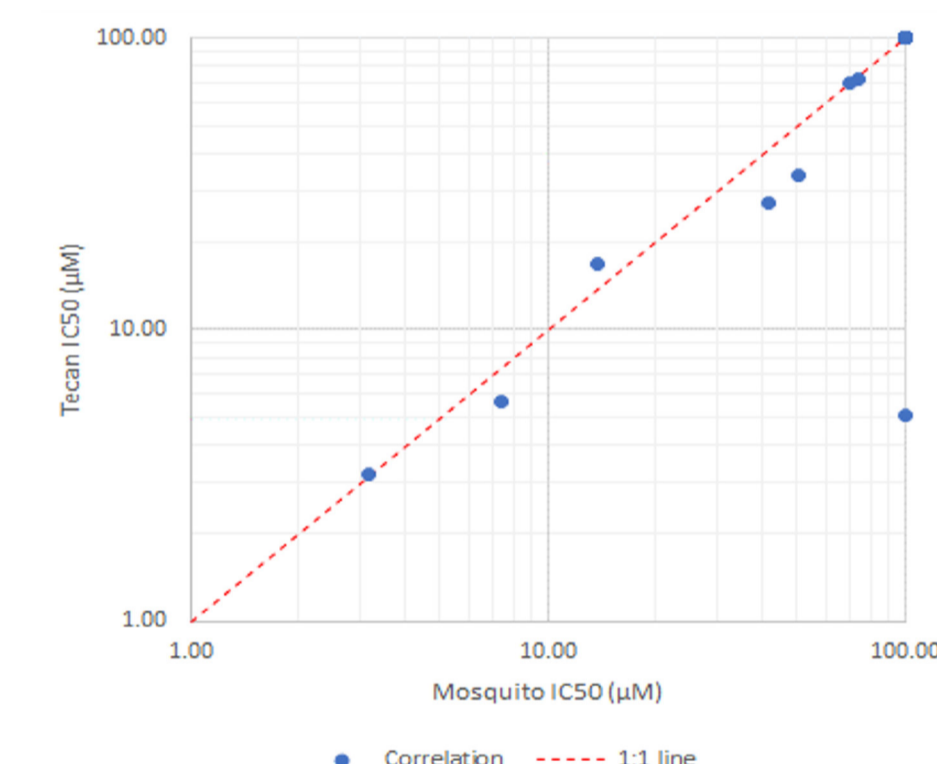
### Target 1 DNA Unwinding Assay



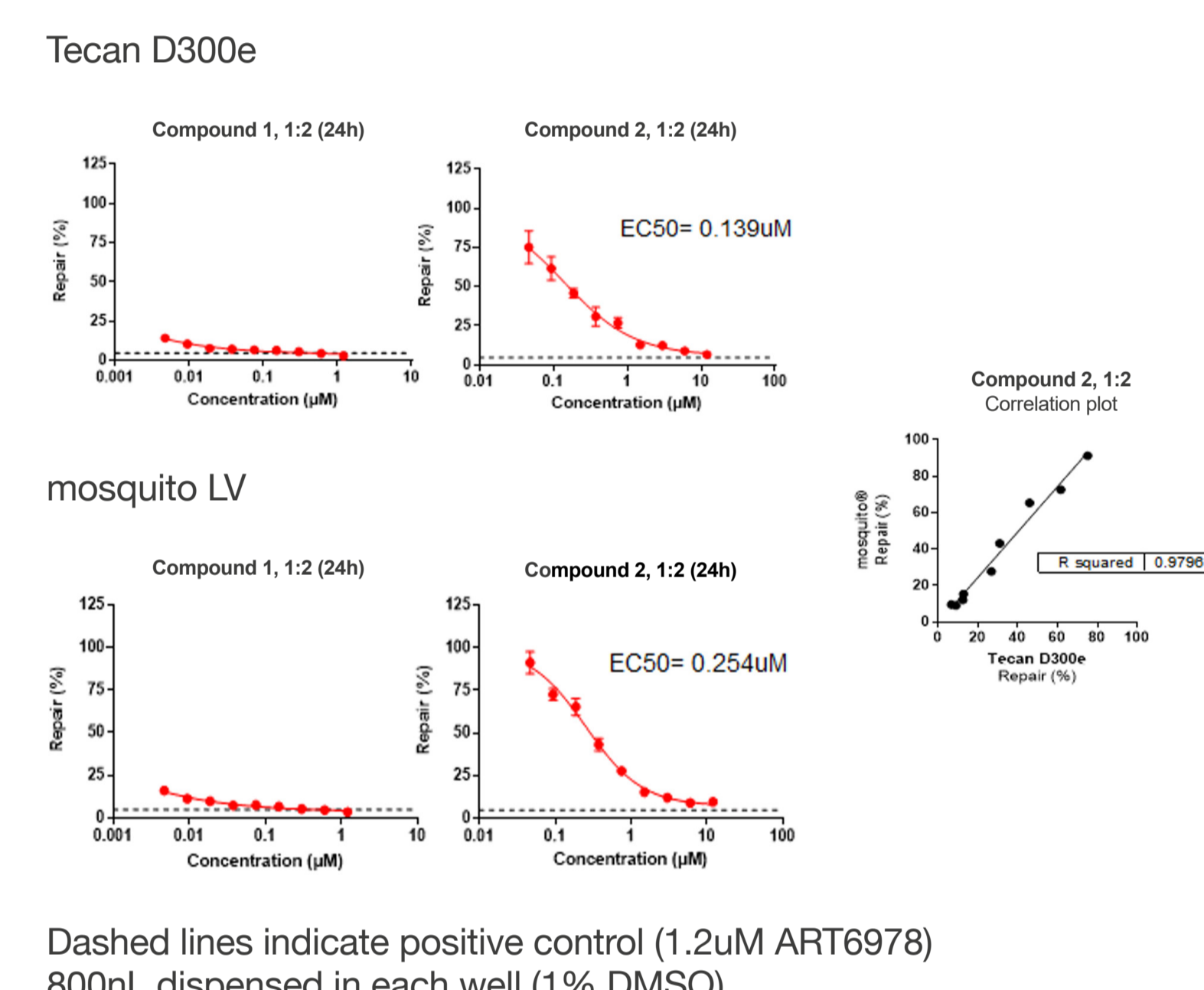
### Target 2 Fluorescence Polarization Assay

	Tecan D300e Assay Ready Plate	In-House CM Assay Ready Plate
Z'	0.8	0.9
% CV High Ctrl	1.87	1.98
% CV Low Ctrl	8.59	8.84

### Target 3 ADP-Glo Assay



### Target 4 Reporter Assay



Dashed lines indicate positive control (1.2µM ART6978) 800nL dispensed in each well (1% DMSO)

## DMTA Cycle Times

Up to 40 % reduction in median cycle time (registration to data posting).

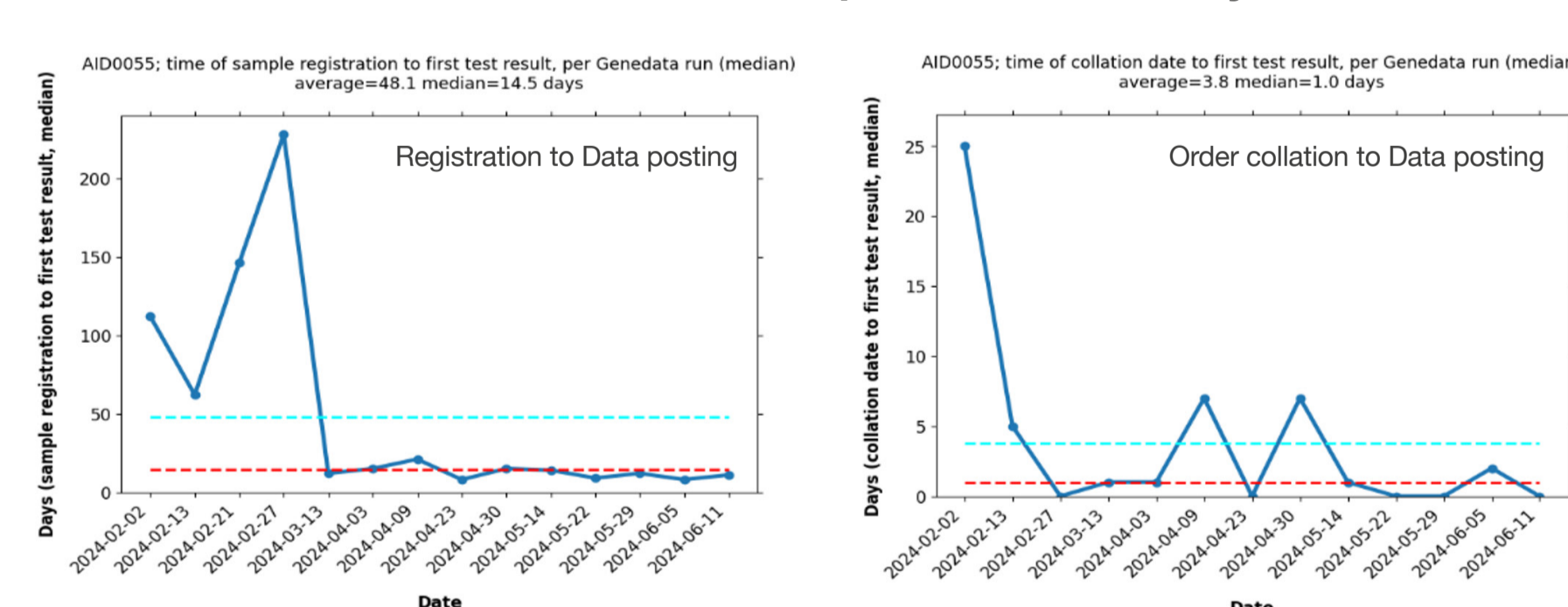
### In-House CM Workflow Details (\*)

Registration to Shipping at CRO - typically 1 day  
Shipping from CRO to Artios - typically 7-10 days  
Assay Ready Plate generation to Data posting - typically 1-2 days

### Compound registration to Data Posting

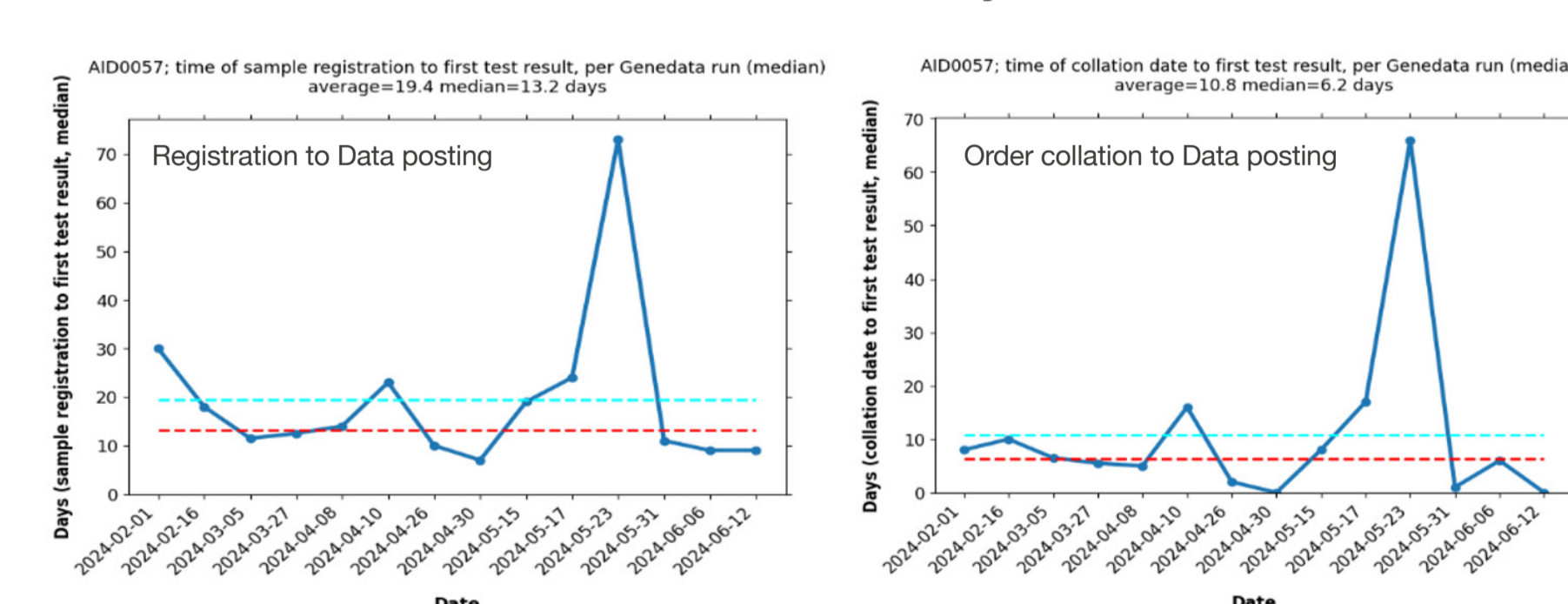
LZgacy assay ready plate supply process (Days)*	21
In-House CM assay ready plate supply process (Days)*	13

### TR-FRET Probe Displacement Assay



\* Based upon typical Biochemical assay

### TR-FRET Assay



## Summary and Future Applications

Developed and embedded end-to-end workflow for sample storage/tracking, requesting, processing, plate generation and sample maps for analysis.

- Manage sample requesting and fulfilment of orders from our centralised on-site stores, with full inventory tracking and workflow management.
- Sample pick and generate assay ready plates for both 96 and 384 well assay formats, including DMTA, Kinetic and Mechanistic formats.

Results in faster plate generation and screening, quicker data reporting to drive decision making and effective use of resources (both financial and FTE).

- "The compound management system has definitely been a big positive and aligns us with industry standard"
- "The CMG has definitely had a positive impact..... We are now receiving compounds from the CRO and typically getting results from the FRET assay by the end of the following day (sometimes same day!)"

Additional use for Mosaic / automation e.g. CMC sample tracking / high throughput reagent generation / protein crystallography