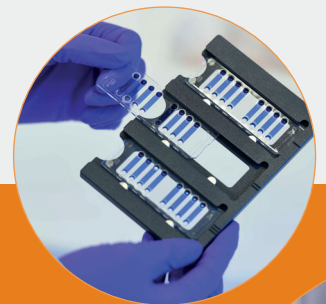


 Solentim

ICON™



The new measure of productivity



The all-in-one benchtop instrument for the selection of leading clones.



 **ADVANCED**
INSTRUMENTS

Lead clone selection...

a single instrument for key Cell Line Development critical quality attributes.

Operating within the structure of Chemical, Manufacturing and Control (CMC), Cell Line Development (CLD) is a pivotal control strategy within the development of therapeutic antibodies. CLD scientists utilise a range of assay types to assess critical quality attributes (CQAs), the basis for clonal selection decisions

Until now, the key CQAs of protein titer and viable cell concentration have been conducted on different instruments, Instruments often shared with other groups, leading to usage bottle necks and challenges in sample tracking and data consolidation.

As a component of the Solentim Ecosystem, ICON offers key CLD assays on a single, easy to use platform, integrating data for decision making directly into the STUDIUS™ data management system.

Early static stage assays



Essential information

at every step, centralised through STUDIUS.

Data from ICON is stored and visualized within STUDIUS, Solentim's data management system for CLD. STUDIUS gives busy scientists easy control of easy assay and a full view of the entire project.



Assays at shaking and bioreactor stages.



Our scalable and effective approach to suspension cell counting and viability measurements.

- Works with Trypan blue and AO/PI measurements
- From 1 to 24 cell counts per scan

For ranking of clones in deep well plates and mini-bioreactors.

- Works on cell mixtures and supernatant
- High range titer measurements, up to 1500 mg/L

Late Corrected Titer

Rank by IgG concentration

at static, expansion and fed-batch

Accurate measurements of titer is a key CQA in cell line development, used for ranking clones. At both static, expansion stage and beyond, ICON offers a rapid and effective titer assay based on fluorescent polarization (FP). FP is a well documented naturally occurring phenomena describing rotational diffusion, namely the observation that large complexes rotate slowly in solution and small complexes rotate rapidly. It is ideally suited for clone ranking, to identify lead candidates at each stage.

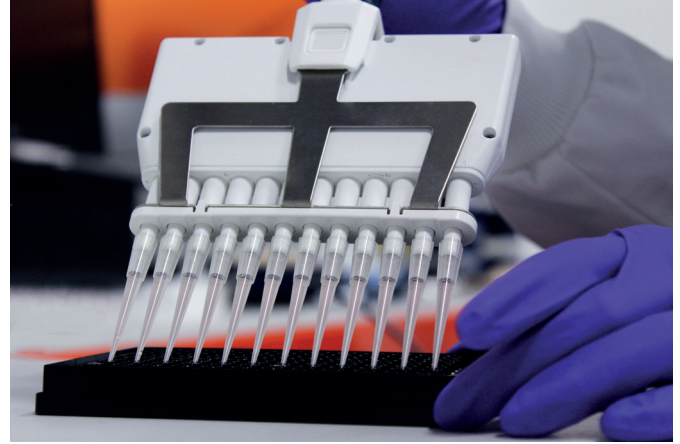


Figure 1. ICON 96-well titer plates are pre-coated and ready to use.

Key Features

- Rapid plate-based IgG titer
- Needs only 60 μ l sample enabling earlier time point measurements and using less precious materials
- Suitable for IgG, bispecifics, Fc-fusion detection
- Works on both supernatant and cell suspension
- Low range (2.5 – 100 mg/L) and High range (100 – 1500 mg/L) plates

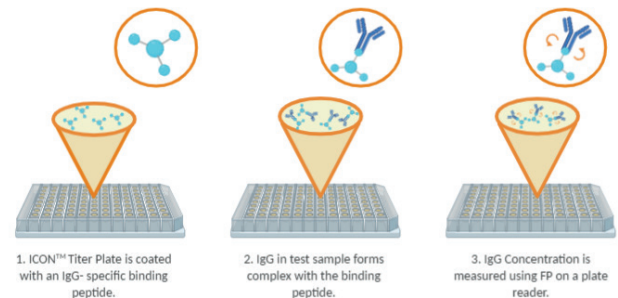


Figure 2. ICON uses fluorescent based polarization assay to quantify IgG concentration in solution.

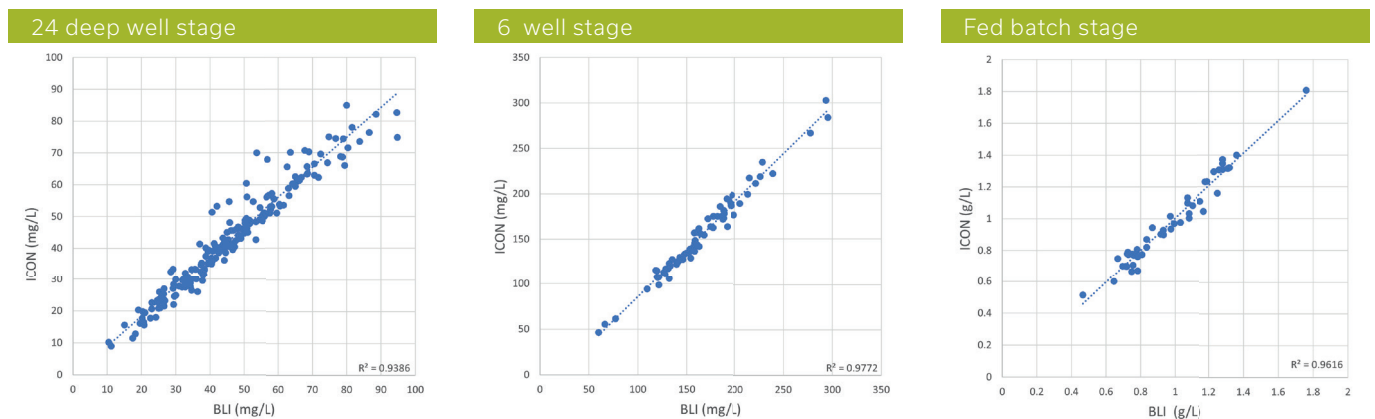


Figure 3. ICON titer assay results compared with biolayer interferometry (BLI) data at 24 deep well stage, 6 well stage and fed batch results show equivalence.

Viable cell density, cell number and growth

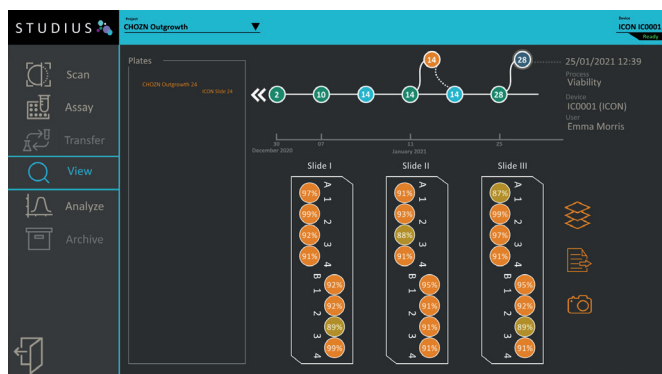
Accurate cell counting is a corner stone to many cell line development and protein science practices.

With ICON, we offer the familiar and trusted methods of Trypan Blue (TB) and fluorescent acridine orange and propidium iodide (AO/PI) with artificial intelligence detection for higher speeds, higher accuracy and higher consistency.

To minimise the impact on precious samples, the assay requires just 20 µl cell suspension and utilises multi-test, disposable slides – from 1 to 24 counts in a single run providing a scalable and cost-effective solution to high accuracy cell counting.



Figure 4. ICON disposable cell counting slides. Each slide accommodates between 1 and 8 counts with up to 3 slides per scan offering up to 24 counts per run.



Key Features

- Cell counting and viability measurement using either Trypan Blue or acridine orange / propidium iodide.
- Format: disposable counting chamber, each with 8 counting areas
- Reader capacity for 3 x 8 slides = 24 counts per run
- Ranges: 0.1 to 10×10^6 cells /ml
- Sample volume 20µl cell suspension



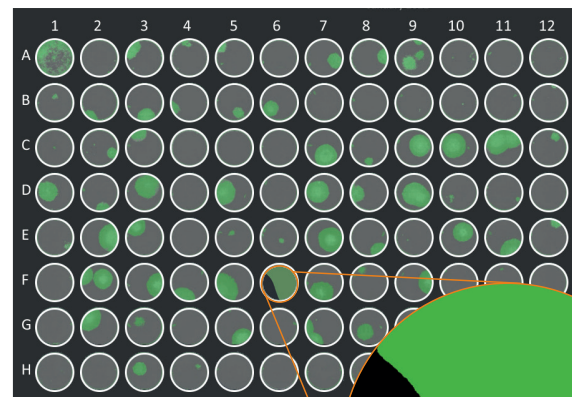
A much smarter approach to confluency

Confluency, the percent area of a microplate well visually covered by cells, is used as a trigger for key events including initiation of cell-based assays, transfection and passaging.

ICON employs a novel neural network approach to confluency detection, being able to distinguish cells from debris for a new level of accuracy.

Key Features

- Artificial Intelligence approach to confluency
- Works in 96 and 384 well plates
- Recognises difference between cells and debris
- High accuracy and highly reproducible results



Confluency assessment

Ground truth = 69.5%

ICON network = 69.7%

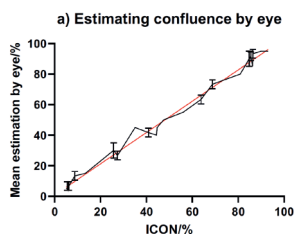


Figure 5: Confluency values generated by ICON versus the Mean \pm SD of $n=3$ repeat estimations by eye in a total of $n=27$ containing wells from both 96-well and 384-well plates. The red line depicts the results from a simple linear regression of $R^2=0.9890$.

Optimised microscopy for cell line development

We know the value of good microscopy, a quick check and confirmation of cell morphology or confirmation of fluorescent expression. In ICON's microscope mode we offer brightfield imaging and fluorescence imaging in both the red (suitable for RFP, mCherry and others) and green (suitable for FITC and others).

Pixel size is optimally suited to cell types commonly used in cell line development while Solentim's proprietary image stack technology captures crisp and clear images.

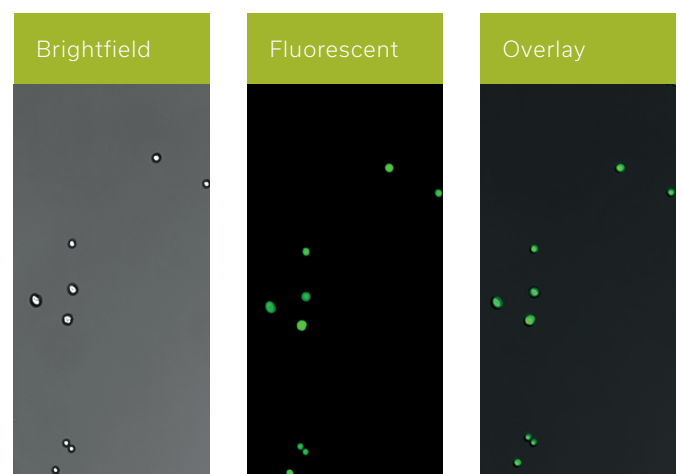


Figure 6. Brightfield and fluorescence images plus overlay from CHO K-1 GFP expressing cell line captured on ICON Microscope Mode.

Focussing on the winners, full data integration with STUDIUS

With STUDIUS, a bespoke data management system, Solentim has changed Cell Line Development forever. An integrated view on project data all the way from seeding to selection. An entire project in a single report. A protected ecosystem of data for users and managers alike.



Run ICON from STUDIUS

Run titer, cell counting, confluency and more from STUDIUS with data presented in clear to manage heatmaps

Do the maths of corrected titer

Say goodbye at last to offline spreadsheets with direct calculation of corrected titer

Triage and sort into virtual plates

Set your criteria for clonal selection based on VIPS™, Cell Metric® and ICON data

View and report entire projects

Export decisions made and data generated in a single, all powerful report

STUDIUS

User: **Emma Morris** Operator
Project: **CHOZN Outgrowth**
Device: **ICON IC0001** Ready

Timepoints

————— 07/01/2021

- CHOZN Outgrowth P1 15:38
Verified clonality
- CHOZN Outgrowth P2 15:42
Verified clonality
- CHOZN Outgrowth P3 15:50
Verified clonality
- CHOZN Outgrowth P4 16:01
Verified clonality
- CHOZN Outgrowth P5 16:07
Verified clonality
- CHOZN Outgrowth P6 16:13
Verified clonality
- CHOZN Outgrowth P7 16:18
Verified clonality
- CHOZN Outgrowth P8 16:23
Verified clonality
- CHOZN Outgrowth P9 16:28
Verified clonality
- CHOZN Outgrowth P10 16:33
Verified clonality

————— 11/01/2021

- ICON Titer 96 10:16
Titer
- ICON Titer 96 15:42
Titer

CHOZN Triplicate

Date Created
11/01/2021 10:16

Error (Sum of Squares)
6.83

Recommended Range
2.5 - 100 mg/L

Scan

Assay

View

Analyze

	1	2	3	4	5	6	7	8	9	10	11	12
A	0.8	3.4	0	0	17.3	83.9	33.8	3.1	3	2.2	3.5	
B	27.3	3	0	16.5	33.5	8.4	0	35.2	0	6.8	0	0.6
C	0	10.5	0	0	3.8	21.2	0	0	15.3	0	15.8	
D	0	0	0	20.8	0	17.4	0.2	0	0	0	32.3	7.6
E	0.7	0	24.5	0	0	0	5.8	60.2	0	83.2	0	
F	0	39.4	0	7.7	30.8	0	10.5	0	0	0	0.3	0
G	0.8	36.9	0	0	70.8	0	0	0.2	0.1	24.1	0	54.5
H	0	0.3	0.1	0	2.6	8.6	0.2	0	0.7	46.8	31.5	0

Search

Layers

Export

Camera

About Solentim

Solentim is the trusted global leader for solutions to create, isolate and characterize the highest value cells for the development of new biological medicines and therapies.

Our portfolio of proven and innovative technologies, combined with our unparalleled experience, ensures our customers achieve accelerated Master Cell Bank development and are confidently prepared for regulatory review.

Solentim is part of Advanced Instruments



Focused on high value cells



www.solentim.com



www.aicompanies.com



Cert No. 12777
ISO 9001

UK and rest of world

Solentim Ltd.

T +44 (0)1202 798510
E sales@solentim.com
support@solentim.com

Solentim China Ltd.

T +86 21 3412 6167
E CNsales@solentim.com
CNsupport@solentim.com

European Union

Solentim Ireland Ltd.

T +44 (0)1202 798510
E sales@solentim.com
support@solentim.com

USA & Canada

Solentim Inc.

T (EST) 617-715-6927
(PST) 619-419-2811
E ussales@solentim.com
support@solentim.com