

# z-Movi

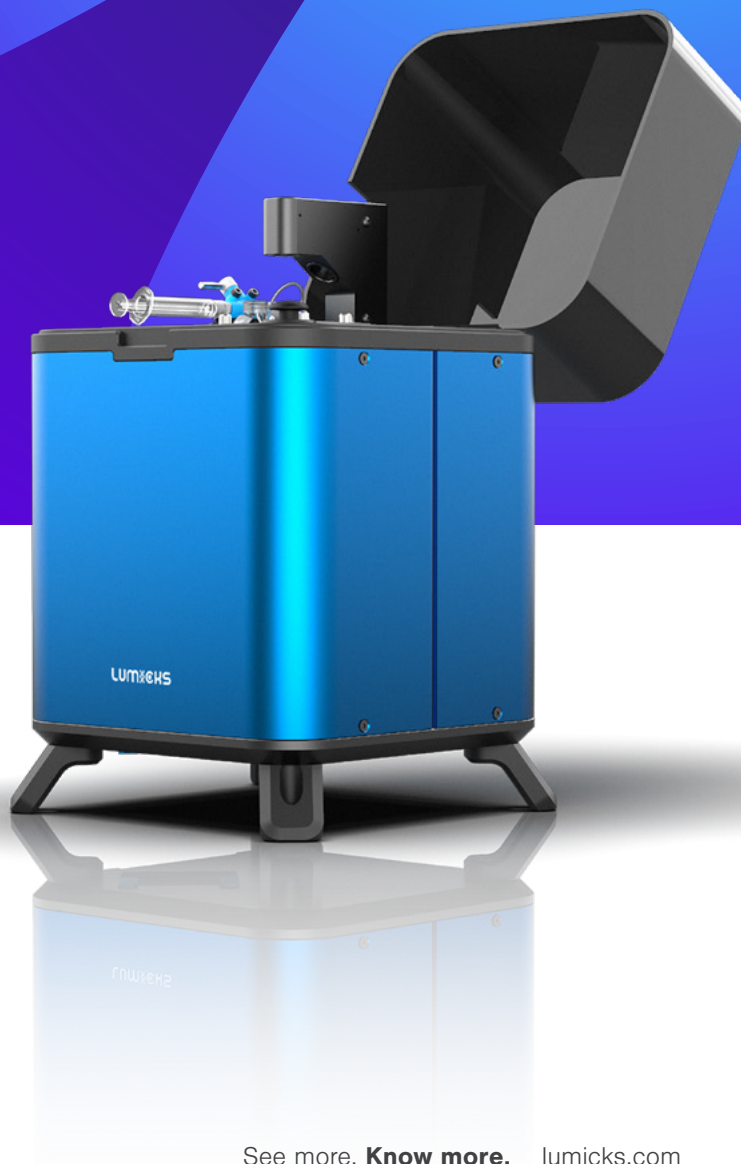
## For small-sizes Cell Avidity studies

A fast and simple solution for single-sample Cell Avidity experiments.  
Run up to 20 measurements per day.

 [lumicks.com/z-movi](https://lumicks.com/z-movi)

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**Product brochure**



**LUMICKS**

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# See more. **Know more.**

LUMICKS is pioneering real-time single-molecule and single-cell analysis, empowering researchers worldwide to transform how advanced immunotherapies are discovered and developed.

## **Our mission**

### **Empowering academic & pharmaceutical communities**

We empower the academic and pharmaceutical communities with cutting-edge technologies to deeply understand the mechanisms of life and disease, driving the discovery and development of life-saving therapies.

## Achievements

### Follow our journey

We are an international team exceeding 150 people with more than 30 nationalities. We are proud of our great sense of ownership with the mentality of being open-minded in teamwork. We embrace challenges and maximize opportunity and experience.

# 16

Average impact factor of publications including Cell Avidity measurements

# >60

Research institutes and biotech/pharma companies working with LUMICKS Cell Avidity technology

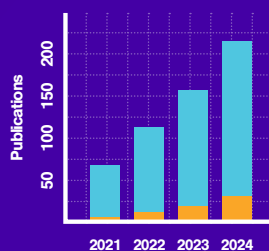
# >220

Instruments installed by LUMICKS across the globe

# >230

Publications include LUMICKS technology measurements

● Total ● Cell Avidity



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# Cell Avidity

## Revolutionize binding for the future of cell & antibody therapeutics

**Go beyond affinity.  
Select leads based  
on their binding in a  
cellular context.**

**Understand the MoA  
of your therapeutic  
products by revealing  
its complex binding  
dynamics**

**Balance potency &  
safety by optimizing  
binding**

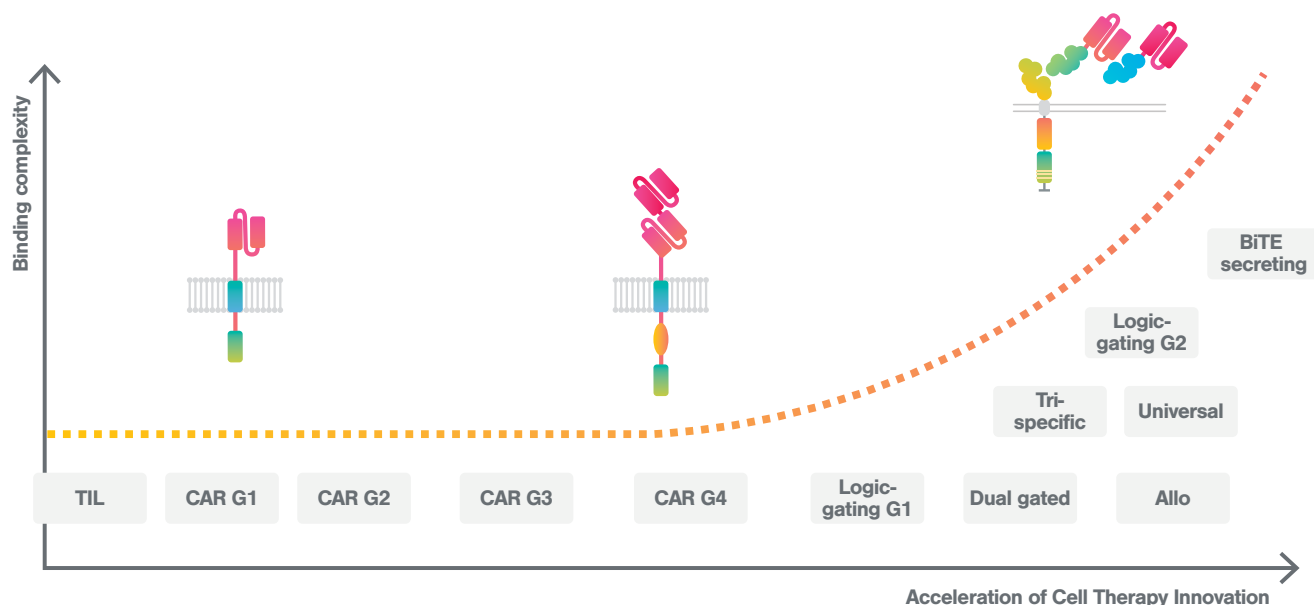
**Unlock faster R&D  
cycles through more  
rational drug design**

Many immunotherapies adapt to solve the field's most pressing issues (an intricate balance between persistence, potency, and safety) by integrating multiple signaling mechanisms and engaging with more than one target in parallel. With that trend, the binding mechanisms between binder and target also complexify.

Yet, most binding assays haven't kept up.

- Molecular assays like tetramer binding and surface plasmon resonance (SPR) offer simplified snapshots. Focusing on isolated ligand-receptor interactions or abundance on a molecular level, they can miss the cellular context and often do not correlate well with functional outcomes.
- Functional assays such as cytotoxicity and activation assays generally measure the outcome of binding yet may fail to provide direct mechanistic insights inhibiting rationally driven design choices.

This creates a gap between what we can measure and what we need to understand to advance next-generation immunotherapies.



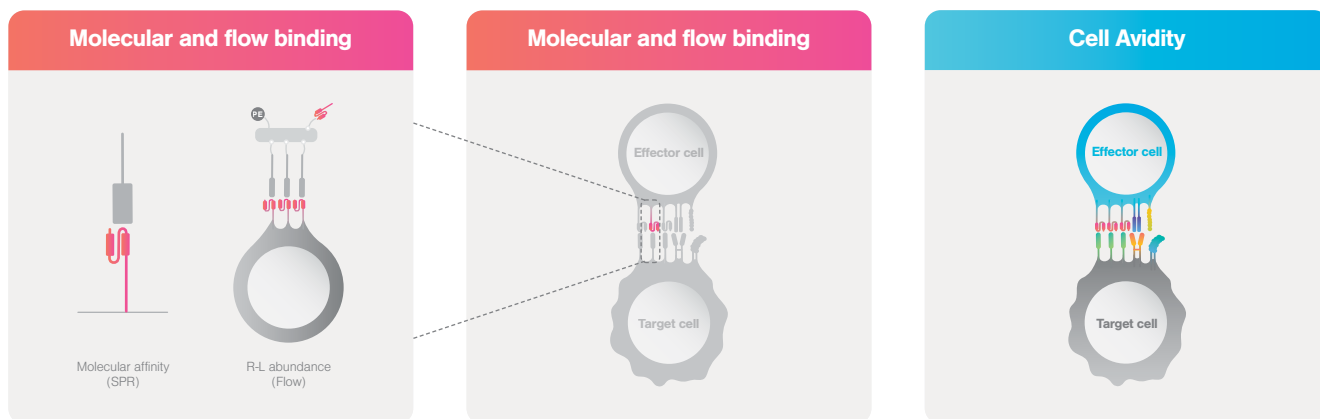
**Figure** Many immunotherapies adapt to solve the field's most pressing issues (persistence, balancing potency and safety) by integrating multiple signaling mechanisms and engage with more than one target in parallel. With that trend, the binding mechanisms between binder and target also complexify.

## Cell Avidity, the missing link

Cell Avidity bridges this gap. By quantifying the strength of cell-cell or molecule-cell binding under controlled force conditions, Cell Avidity offers a direct, physiologically relevant measurement of binding in its full complexity.

Applied to cell therapies (CAR-T / TCR-T / NK), cell engagers and antibodies, Cell Avidity is shown to reveal the mechanisms of action, facilitating rational design choices, selecting the right candidates fast and early, and ultimately improving therapeutic outcomes.

To design smarter immunotherapies, we need to measure binding the way it happens—in real life, in real cells. This is Cell Avidity.



Molecular binding assays measure preconditions for binding...

... providing limited insights into actual cell binding.

## Unlock faster R&D cycles

### Select the right drug candidate fast

Cell Avidity analysis enables you to quickly rank hundreds to thousands of therapeutic candidates based on potency, antigen sensitivity and safety. Integrating Cell Avidity early in the discovery workflow ensures only the most promising candidates advance.

### Deep candidate characterization to drive clinical selection

In the final stages of drug development, Cell Avidity enables deep functional characterization of a select few candidates. By revealing differences in avidity dynamics and target engagement in the cellular context, it provides crucial mechanistic insights to confidently select the right therapeutic for clinical development.



## Specifications

- Force application: Acoustic force
- Data output: Single color fluorescence (for Cell Avidity)
- Fluorescent wavelengths: 635nm
- Dimensions (L x W x H): 21 x 21 x 32 cm (excluding peripherals)
- Consumable: Re-usable chip (50 or 125 runs)
- Throughput: 20 measurements per day (4 chips with 5 runs)
- Number of cells measured: Up to 400 cells per measurement

## Sample requirements

- Accepts standard media and cell densities
- Compatible with adherent or suspension cultures

# z-Movi

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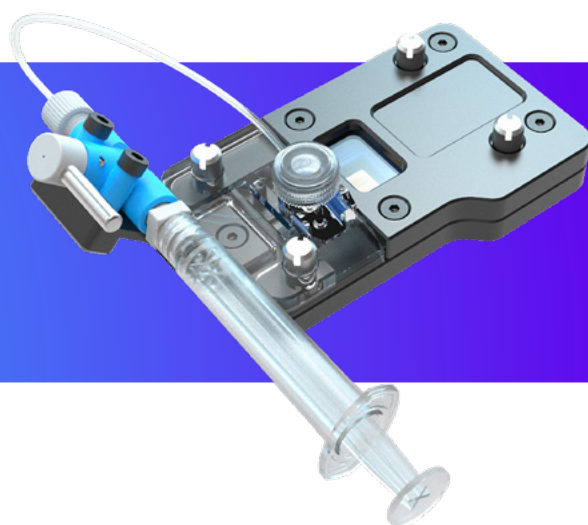
**Up to 5 sequential Cell Avidity measurements on the same monolayer**

**Easy and flexible through quick set-up times and low investment**

**Fits in the smallest of labs and fumehoods**

### The z-Movi chip

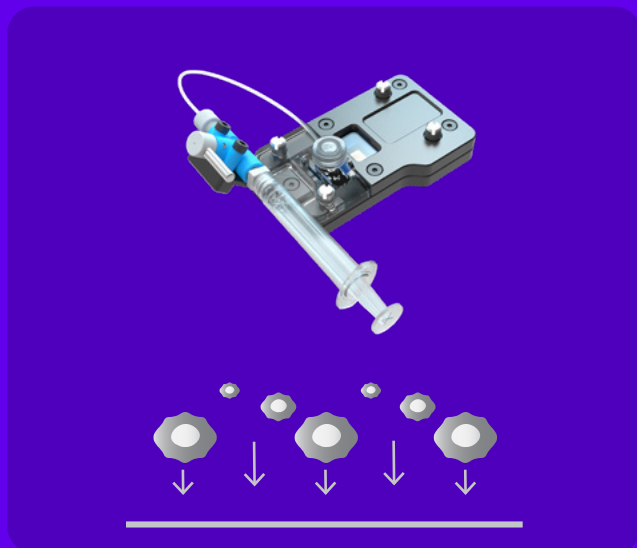
Each z-Movi includes 5 re-usable chips that support up to 125 runs each. The chip allows for the creation of a robust monolayer and contains smart electronics to maintain consistent quality over its lifetime.



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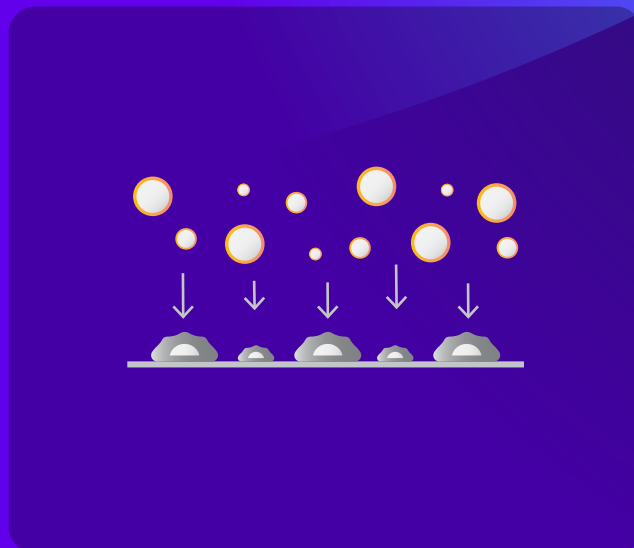
## Workflow

# Intuitive, from start to finish



### Culture your target cells

Flow in your target cells and incubate between 2hrs to overnight, forming a uniform and robust monolayer in each chip.



### Flow in your effectors

Introduce fluorescent effector cells or protein coated beads. The z-Movi automatically takes care of the force application to ensure repeatable measurements.

## Meet **Oceon**

### Set up and execute your experiments with our easy-to-use interface

Oceon guides you through a full z-Movi experiment, making it very easy for new users to adopt. It keeps track of your experiments and chips, ensuring you maintain a clear overview.

### Obtain unique insights through powerful analysis algorithms

Oceon's real-time analysis provides immediate insight into binding. Its analysis algorithms identify cell behaviors, giving you a clear visualization of your results.



### Get real-time insights

Obtain preliminary Cell Avidity results right as the measurement happens, enabling immediate insights into possible binding behavior.

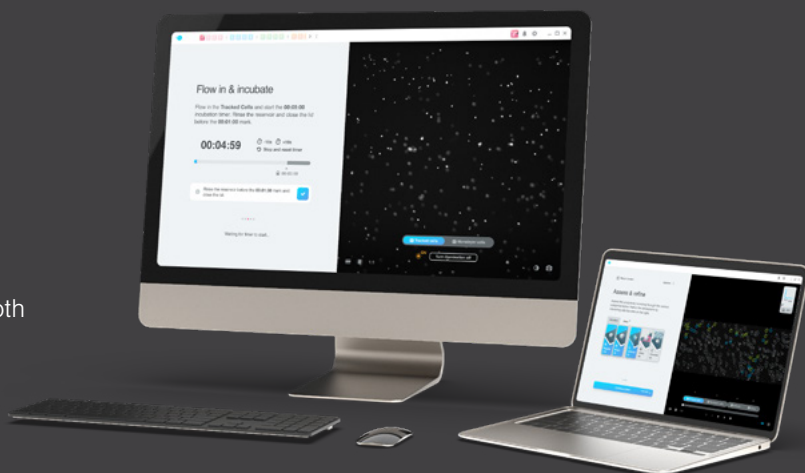


### Grab your data and clean up

Visualize and analyze your data from the comfort of your desk or home. The re-usable chip can be cleaned using our standard cleaning protocols.

### View, analyze and export your data anywhere, any time

Dive into your data and its analysis on your laptop or from behind your desk. Export your data to easily convert into figure-ready graphs. Oceon supports both Windows and Mac systems.



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# Cell Avidity enables pioneers working at the cutting edge of immunotherapy

Join >60 leading research institutes and biotech/pharma companies worldwide who leverage Cell Avidity measurements for their research.

**“Up to now we characterized T cells by killing, proliferation and cytokine production. Now we also add Avidity to every project because Cell Avidity helps us understanding an additional characteristic of the T cell we could not have measured otherwise. Without Cell Avidity we would not have been able to dissect the differences between h1218 and FMC63 T cells and understand the mechanism behind the phenomena that we observed.”**



**Marco Ruella, MD**, University of Pennsylvania

**“Interestingly, of the pre-clinical assays used to compare CAR constructs, only binding avidity correlated with *in vivo* results.”**



**Marcela Maus, MD, PhD**  
Massachusetts General Hospital

**“Cell Avidity gives us insights into the blind spot we currently have between molecular binding and functional outcome. It helps us integrate different parameters that contribute to CAR function. It could give us more information than affinity alone and help us narrow down the functional relevance of a few variables in the matrix of many of these variables in the CAR world.”**

**Markus Barden, PhD**, Leibniz Institute for Immunotherapy

**“Cell Avidity measurements provide key information that can accelerate immunotherapy development by accurately predicting *in vivo* and clinical efficacy.”**



**Mark Lowdell, PhD**  
University College London & INmune Bio

**“Using Cell Avidity, we can identify the results that we were able to see *in vivo*, which cannot be predicted with other strategies *in vitro*.”**



**Carlos Fernandez, MD, PhD**, Hospital Clinic de Barcelona



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