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MAGNA™

Transforming RNA-targeted drug development

The promise of RNA-targeted therapeutics

RNA forms complex three-dimensional structures that play important roles across a wide variety of cellular processes. However, RNA is largely unexplored as a drug target, representing an exciting opportunity to open a new universe of life-changing therapeutics for a wide range of health conditions.

Targeting these structures with small molecule therapeutics provides unprecedented opportunities for modulating the many cellular processes that have previously been considered ‘undruggable’.

Progress in this space is hampered by a lack of effective methods to visualize and understand how RNA structures interact with their native ligands and candidate drugs. This major limitation can result in ineffective molecules being advanced through the drug development pipeline with consequent costly failure during late preclinical or early clinical stages.

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A new way to look at RNA

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MAGNA™ offers a powerful new way to explore RNA-ligand interactions. Based on established magnetic force spectroscopy technology, MAGNA™ precisely measures how the biophysical properties of RNA structures change as ligands bind to them.

This real-time view reveals vital information about binding kinetics and mode of action. Uniquely suited to studying the complex interactions between small molecules, proteins, and target RNAs, MAGNA™ enables confident hit-to-lead selection and optimization, accelerating and de-risking the development of novel RNA-targeted small molecule therapeutics.

MAGNA™ brings a new biophysical, single-molecule technology to the world of RNA drug development, providing powerful new insights into how drugs modulate RNA structures for therapeutic benefit, helping to accelerate and de-risk drug discovery in this fast-emerging field.

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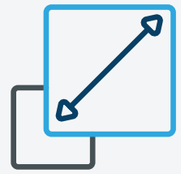
Real-time single molecule analysis

Revealing the dynamic nature of RNA structures

While technologies such as NMR, cryo-EM, and SHAPE provide static views of RNA structures, MAGNA™ uses force measurement to deliver insight into the dynamics of RNA folding, including structure, stability, uniformity, and size. As this information is vital for designing structure-based drugs, MAGNA™ is set to become an invaluable for tool for selecting promising RNA targets.

MAGNA™ combines simple protocols with scalability

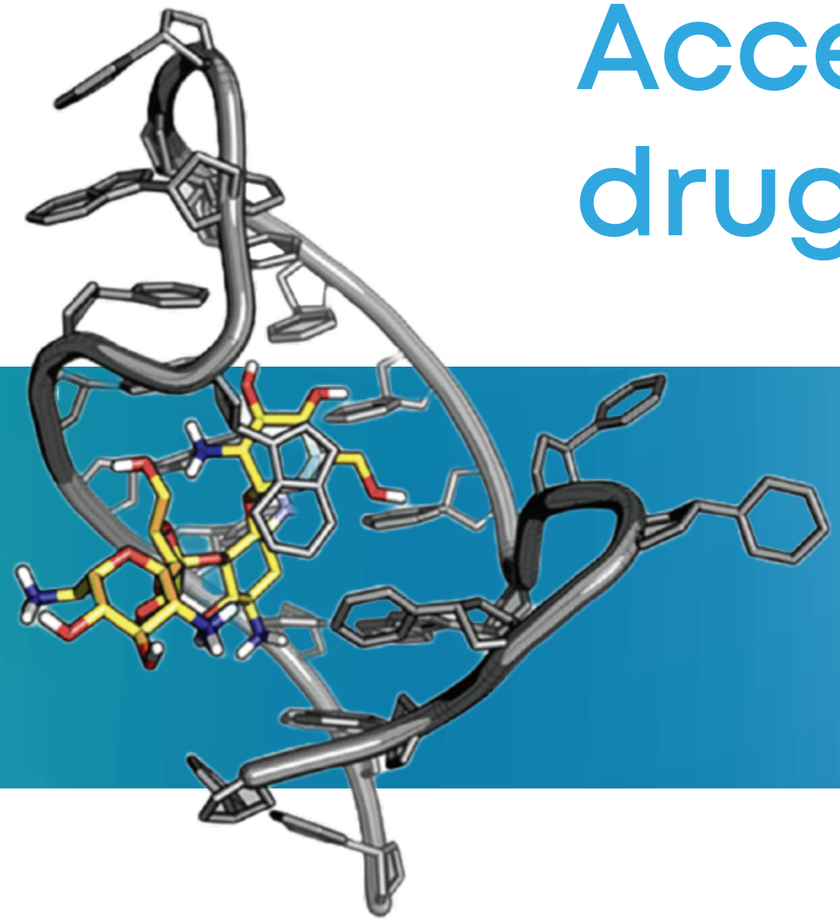


Experiemtns are straightforward to set - up run with MAGNA™, generating accurate and reproducible data with fast turnaround times. The approach is also highly scalable, opening up future possibilities for sample multiplexing or screening drugs against large numbers of RNAs to identify off-target effects.

Real-time visualization of individual binding events

The arrival of MAGNA™ marks a major advance from the bulk binding assays of SPR, ITC and other techniques. With each binding event visualized in real-time and across large numbers of individual target molecules, MAGNA™ sees all the action, not just averages.

Accelerate RNA-targeted drug discovery



Explore detailed binding kinetics

Real-time, single-molecule binding event data open the door to detailed and accurate kinetic information. Binding rate constants such as Kon and Koff can be measured directly, providing valuable insights into drug binding affinity and concentration dependency.

Identify drugs that affect RNA structure

Typically, small-molecule drugs targeting RNA either stabilize or destabilize the tertiary structures of their targets to generate a therapeutic effect. MAGNA™ can detect the subtle changes in molecular stability that occur when drugs, proteins, or other ligands bind to target RNA structures, allowing rapid focus on the most promising drug candidates.

Probe multi-ligand interactions

RNA structures typically form biologically relevant complexes with other molecules, including other RNAs, proteins and DNA. MAGNA™ can be used to track the formation of these complexes, as well as to identify and characterize drugs that either promote or disrupt these key interactions.

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Work with us

We collaborate with some of the world's leading experts in the field of RNA-targeted small-molecule drug discovery, demonstrating MAGNA™'s capabilities across a wide range of published and unpublished RNA targets, and helping to reveal hidden mechanisms of drug action.

We're expanding our existing collaborations and actively seeking partnerships with large and small biopharma companies working on novel RNA-targeted small molecule therapeutics.

**Email Christine Blancher,
Head of Applications & Collaborations,
at christine.blancher@depixus.com
to discuss how MAGNA™ can transform
your drug discovery research.**

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Find out more at **depixus.com**
3-5 impasse Reille 75014 Paris, France
Harston Mill Royston Rd Harston Cambridge CB22 7GG, UK