

Affinity-Based Method for Drug Target Identification

Tech ID: 20435 / UC Case 2009-301-0

SUMMARY

UCLA researchers from the Department of Molecular and Medical Pharmacology have developed a novel method for drug target identification. This new method overcomes the limitations of current methods, and will greatly facilitate both drug discovery and chemical genetics research.

BACKGROUND

Drug target identification (ID) is to search for a protein or to fingerprint a domain of a protein, with which a pharmaceutical drug specifically interacts; therefore this process provides critical information on the therapeutic mechanism of a drug and also potential side effects. Drug target identification is a rate-limiting step in drug discovery and drug development. Current methods are unsatisfactory because they either cannot use a drug in its native form, require a large quantity of a target protein, or rely on overt biological effects. Therefore, it is very desirable to develop a target identification method that overcomes these limitations and advances the rate-limiting step in both drug discovery and chemical genetics research.

INNOVATION

Researchers at UCLA have developed a novel affinity-based method for drug target identification. This method changes conventional ways of detecting drug-target interaction therefore overcomes many limitations of current methods. A drug of interest can be used in its native stage. A potential target can be obtained from cell lysate or synthesized from recombination technology or *in vitro* transcription and translation.

APPLICATIONS

- ▶ A drug target identification method for drug discovery and chemical genetics research.
- ▶ Developing combination therapies.
- ▶ Recycling or finding new therapeutic areas of existing drugs.

ADVANTAGES

- ▶ Using native, non-derivatized drug.
- ▶ A powerful, universal target ID method: not limited by the drugs mechanism of action, nor limited to a single organism or system.
- ▶ A potential target can be obtained from cell lysate or synthesized from recombination technology or *in vitro* transcription and translation.

STATE OF DEVELOPMENT

The proof-of-principle of this method has been demonstrated in Rapamycin-FKBP12 system and Didemnin B-EF1a system. The application of this method also led to the discovery of a new cellular target for resveratrol, a natural anti-aging molecule.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,703,438	04/22/2014	2009-301

CONTACT

Claire T. Wake
 cwake@research.ucla.edu
 tel: 310-794-3576.



INVENTORS

- ▶ Huang, Jing

OTHER INFORMATION

KEYWORDS

process/procedure, therapeutic, drug target identification, drug discovery

CATEGORIZED AS

- ▶ **Medical**
 - ▶ Delivery Systems
- ▶ **Research Tools**
 - ▶ Screening Assays

RELATED CASES

2009-301-0

UCLA Technology Development Group

10889 Wilshire Blvd., Suite 920, Los Angeles, CA 90095

<https://tdg.ucla.edu>

Tel: 310.794.0558 | Fax: 310.794.0638 | ncd@tdg.ucla.edu

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