Screening method for identifying compounds that treat disorders in circadian rhythms

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BACKGROUND

The CRY1:CLOCK:BMAL1 sits at the core of the integrated transcription-translation feedback loop that regulates the expression of proteins that are dependent upon circadian rhythms. Disruption of circadian rhythms has been linked to altered cell homeostasis and diseases.

TECHNOLOGY DESCRIPTION

The initial discovery at UC Santa Cruz was that CRY1 interacts with CLOCK via a deep binding pocket. Later it was shown by another group that linked a mutation in this binding pocket with an inherited sleep disorder. The deletion of the exon 11 domain, which contains the mutation, was confirmed experimentally at UC Santa Cruz to block the CRY1:CLOCK interaction.

The UC Santa Cruz group developed and optimized a screening method for inhibitors of the CRY1:CLOCK interaction. Such inhibitors would act as a "reset" of the transcription-translation feedback mechanism and act more directly and rapidly than other drugs that are proposed to elicit such effects.

APPLICATIONS

Screening for drugs that treat circadian rhythm disorders

ADVANTAGES

Novel, validated target for circadian rhythm disorders

INTELLECTUAL PROPERTY INFORMATION

Country	Type	Number	Dated	Case
United States Of America	Published Application	20190324032	10/24/2019	2017-260

RELATED MATERIALS

- Mutation of the Human Circadian Clock Gene CRY1 in Familial Delayed Sleep Phase Disorder - 04/06/2017
- Formation of a repressive complex in the mammalian circadian clock is mediated by the secondary pocket of CRY1 - 01/31/2017

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OTHER INFORMATION

KEYWORDS

Circadian Rhythms, Sleep Disorders, Compound Screening, Novel Drug Targets

CATEGORIZED AS

- **Medical**
  - Disease: Genetic Diseases and Dysmorphic Syndromes
  - Disease: Metabolic/Endocrinology
  - Screening

RELATED CASES

2017-260-0

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