# New Insight Offers Information on the Internal Body Clock's Relation to Depression

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## Circadian Rhythm and Depression

Depression is a mental health condition that ranges from mild to severe. Those with depression often find it difficult to cope with the condition because there is often no underlying cause for the feelings of sadness and sometimes suicidal thoughts present in their mind. Researchers continue to look into the way the body works as a key to finding an effective treatment solution.

Researchers from UT Southwestern Medical Center have found information that offers key insight into how the body's internal clock is tuned. According to findings, a specific molecule known as the long non-coding RNA regulates the body's internal clock. The body's internal clock is regulated by daily rhythms known as circadian rhythms. It regulates the day-to-day rhythms of the body's functions, including waking, sleeping, hunger and body temperature.

The clock is tuned to a 24-hour cycle, which is influenced by external cues, such as the temperature or amount of lighting present. While researchers have known for some time that long non-coding RNAs are abundant in many organisms, it hasn't been clear what exactly they do or how they do it.

Researchers stated that determining how the human circadian clock works is vital in understanding several different human diseases, including depression. The functional clock shows its importance in performance decreases in shift workers whose internal clocks are thrown out of whack.  Dr. Lui, head of the research study, was able to learn more about circadian rhythms with his team by studying model systems involving a bread mold. They found a long non-coding RNA named QFR controls the expression of a clock gene named frequency. Unlike the standard molecule RFQ, it doesn't produce a protein. The lack of protein production creates absent phases in the internal clock, allowing the RNA to act robustly.

Researchers anticipate a similar mode of action may be responsible for the clock within humans. According to Dr. Michael Sesma; "This study adds to an important body of work that has shown the ubiquity of a circadian clock across species, including humans, and its role in metabolic regulation in cells, organs and organisms." Understanding the process of the body's internal clock offers insight into how circadian rhythm and depression are linked within specific patients. When the physiological process is disrupted, this could lead to faults in brain processing, causing depressive symptoms.