



Application number/Title: 45289 - The location of the human seasonal clock

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Keywords provided by the Applicant PI to describe the research project:
hpa, biological-oscillator, imaging-data, pituitary, seasonality, thyroid

Application Lay Summary:

Many people suffer from winter blues, also called seasonal affective disorder. This debilitating disorder can lead in extreme cases to hospitalization and suicide. Winter blues is one aspect of the seasonal clock that human beings share with other animals, in which our behaviour and bodies attune to the season of the year. The location of this clock in the body is not known. We aim to discover where the seasonal clock is in human beings, so that we can propose new ways to treat winter blues. We used mathematical models to predict that the clock is based on the sizes of hormone glands, that make each other grow and shrink in a yearly cycle . To test this, we will use the UK biobank collection of brain images and abdomen from tens of thousands of people, that will allow us to see the volume of hormone glands in the brain, neck and abdomen area, and test whether indeed their sizes go up and down in a predictable yearly fashion. If successful, we will have learned where the seasonal clock in humans might be, and offer new ways to treat diseases of the clock such as winter blues using, for example, mild and safe hormonal therapy.