Excerpt from Night Life

EXT. LONDON - NIGHT

NARRATOR
Sleep. It's a necessary function that each of us undertakes every single day. A proper nights sleep is good for our health, our state of mind and general well-being. However, in a modern world of screens, lights, the internet and a perpetual state of global consciousness, Urbanites across the globe are sleeping less and less.

Cut to montage of Kai & Keith one-liners about sleep.

KAI
I don't have any kind of sleeping pattern.

KEITH
I get less sleep today than I've ever had.

NARRATOR
The strained relationship between our modern lives and the most natural and basic of our human needs is still largely a mystery. But, with an upcoming vote in the European Parliament to abolish Daylight saving time, sleep has never been more at the forefront of our collective imaginations.

Cue TITLE

NARRATOR
Doctor Ko-Fan Chen is a Research Associate for the Institute of Neurology at University College London. His study on flies, their sleep patterns and behaviours has helped lead the way towards a deeper understanding of our own sleep.

Cut to Kofan.

KOFAN
I use the fruit fly for my research.

That is because it is one of the most popular genetic models. It has a very short life span, very short generation time, and it's very easy to rear. In fact, we can have hundreds of hundreds of flies here on the shelf. The important thing is that in the fly we have a genetic tool that allows you to manipulate genes very easily. So, in fact, you can almost manipulate every single gene in flies. It makes for a very attractive model in the study of how genes work together to generate cellular phenomena like the Circadian clock and sleep. Also, about 40% of fly genes are conserved in the human genome. If you look into human disease-related genes more than 70% of them actually have a fly equivalent in the fly genomes. Therefore any mechanism we find in the fly could provide insight into human research. That is why they are very useful for me.

Cut to flies under a microscope.

NARRATOR
With such a powerful tool at their disposal, scientists have been able to advance their research into the how's and why's of sleep that still alludes us. But what is it that Ko-Fan and the science community have been able to ascertain that might help? The clue is in the location.

Cut to Kofan.

KOFAN
Environmental factors have a huge impact on the fly's sleep pattern. Moving to a different light cycle you will see different patterns. Total amounts of sleep might be the same but their pattern will be changing.

Cut to bustling city streets.

NARRATOR
We are creatures of routine. Our

location and the environment around us clearly affect that. Yet we follow the same patterns of behaviour. We feel energised or sleepy around the same time each day. This is what scientists refer to as the Circadian rhythm. But, what exactly is the Circadian rhythm?

KOFAN
The Circadian rhythm is a 24-hour rhythm. Specifically, it is the rhythm in behaviour in physiology that has a period of 24 hours. It literally exists in almost all organisms on earth. Typically you see this in the sleep/wake cycle. Your blood pressure, your body temperature, your bowel movement, your hormone level all show this 24-hour rhythm. This means they all have highs and lows over 24 hours and repeat day after day after day. The rhythm is controlled by a molecular mechanism, which is an oscillation of the so-called 'clock genes'. This oscillation gives rise to the oscillations of your behaviour and physiology so it is a cellular process. In terms of sleep, the Circadian clock or Circadian rhythm will control when you feel more sleepy in a dyno-animal like us. For nocturnal animals, it will be the other way around. It controls when you feel more sleepy over a 24 hour period.

Cut to student in bed on a laptop.

NARRATOR
This direct relationship between our integral, internal clock and our surroundings is a natural phenomenon. However, as we march on into the 21st century many of our lifestyles and the environments we live in are anything but natural.

KOFAN
The artificial introduction of light in the evening would be able to delay the internal clock. Basically, your

own set of behaviour would be delayed. Therefore it would keep you in sync with your environment. This shows that even if you have an intrinsic, inherited problem with your Circadian clock the environment is still able to intervene. To change the profiles of your sleep to better fit into your daily regime.

NARRATOR
Unfortunately, this remarkable ability doesn't always work to our benefit.