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## Plan Overview

*A Data Management Plan created using DMPTool*

**Title:** Study of brain regions and neural mechanisms involved with respiratory responses in situations of hypercapnia during sleep and wakefulness.

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### Project abstract:

Central chemoreception is a fundamental homeostatic mechanism and the dysfunction in its regulation, especially during sleep, has been related to several sleep-related respiratory diseases, which are present in an increasingly prevalent way in the current population. Evidence suggests that throughout the sleep-wake cycle there is a variation of central chemoreflex, as well as the predominance of the chemosensitive sites and neurochemical mechanisms involved, however such mechanisms are still little known. Thus, the present project proposes to study neurotransmitters (orexins, melatonin, MCH) and regions of the central nervous system classically involved in the control of the sleep-wake cycle such as the tegmental nucleus pontine peduncle (PPTg), or involved with respiratory disorders during sleep as is the case with the kölliker-fuse (KF) nucleus, which share functions in respiratory control and, possibly, have relevance in the control of the hypercapnic central chemoreflex. We will investigate the possible role of these neurotransmitters and brain regions in the modulation of respiratory control during activation of the central chemoreflex, during wakefulness and sleep. To do so, neuroanatomical and functional techniques will be used, including immunohistochemistry, microinjections, central microdialysis, pulmonary ventilation recordings in unanesthetized rats, EEG, EMG, body temperature as well as electrophysiological experiments, with patch-clamp technique.

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# Study of brain regions and neural mechanisms involved with respiratory responses in situations of hypercapnia during sleep and wakefulness.

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## Coleta de Dados

### Que dados serão coletados ou criados?

Data will be obtained from the pulmonary ventilation recordings in a plethysmograph system and from the EEG/EMG recordings of unanesthetized rats.

### Como os dados serão coletados ou criados?

Data will be acquired through specific software for recording and analyzing ventilation, EEG and EMG data. Then it will be transferred to tables for graphing and statistical analysis.

## Documentação e Metadados

### Que documentação e metadados acompanharão os dados?

Graphics, figures, and tables.

## Ética e Conformidade Legal

### Como você administrará qualquer questão ética?

All procedures were approved by the Ethics Committee for the Use of Animal of Biosciences Institute/UNESP (CEUA number 6766090620).

### Como você vai gerenciar os direitos autorais e os direitos de propriedade intelectual (IP / IPR)?

As a result of this project, articles will be published.

## Armazenamento e Backup

### Como os dados serão armazenados e terão backup durante a pesquisa?

Data will be backed up with copies in hard drives in laboratory computers, as well as the university offers google Drive, which assists in data storage.

### Como você vai gerenciar o acesso e a segurança?

All researchers involved in the project will have access to the data, but only the researcher responsible and coordinator will edit and update the backup.

## Seleção e Preservação

### Quais dados são de valor a longo prazo e devem ser mantidos, compartilhados e / ou preservados?

The data will be shared with the scientific community through publications.

### Qual é o plano de preservação a longo prazo do conjunto de dados?

We store these data in drives of the laboratory and in a cloud-based storage service.

## Compartilhamento de Dados

### Como você vai compartilhar os dados?

The data will be presented scientific congresses and it will be published in the form of articles.

### Existem restrições ao compartilhamento de dados requeridos?

No restriction.

## Responsabilidades e Recursos

### Quem será responsável pelo gerenciamento de dados?

As a coordinator of the project, I will be responsible for it.

**Quais recursos você precisará para entregar seu plano?**

Collaboration with other researchers to complete all the proposed protocols.