

## **\* ARRIVE Reporting Guidelines**

*This study involves use of animal models:*

Yes

*Manuscripts reporting on animal research are expected to adhere to the ARRIVE guidelines. A completed ARRIVE reporting guideline checklist will be required prior to acceptance and the information should be clearly presented in the manuscript. The following shortened version of the checklist should be completed at this time; a completed ARRIVE checklist is required to be uploaded during revision submission.*

### **Animals**

*Species, age, sex, strain, and sources of animals are described:*

- Yes
- Sleep fragmentation induced early complications in health of Apoe<sup>-/-</sup> male mice. Thus, in this study we only focused on effects of sleep fragmentation in female mice.

### **Randomization**

*Randomization and allocation concealment were performed and described:*

- Yes

### **Blinding**

*Blinding was performed and the process described:*

- Yes

### **Inclusions and Exclusions (a)**

*Specific criteria for inclusions and exclusions are specified:*

- Yes

### **Inclusions and Exclusions (b)**

*Criteria for inclusions and exclusion were set before the study:*

- Signs of pain or distress. Failure of the IV injection for adoptive transfer experiments.

### **Reporting of Excluded Animals**

*All animals excluded after the randomization are reported:*

We excluded 12 mice out of total 60 mice from the study due to excessive skin lesions caused by idiopathic dermatitis resulting from a Western diet. These exclusions were made independently of their study group assignments.

### **Statistical Methods**

Statistical Methods are described:

- Yes