REFEREE'S COMMENTS *(continue on another sheet, if necessary)*

The abstract depicts the main objectives of the book; however, in the table of contents, one of the major factors participating in some of the neurodegenerative diseases described by the book has been forgotten: inflammation and autoimmune response. I suggest to include this topic in the section number 2. Additionally, I suggest to make some minor additions to the title and abstract:

1. Title: Young SCIENTIST perspectives for old diseases: recent updates on the understanding and therapies for neurodegenerative diseases.

2. In this book, a great team of outstanding young neuroscientists takes the effort for the NON-SCIENTIFIC reader.

3. The third section discusses the most common AND SOME RARE neurodegenerative diseases….

6. **06-Apr-2012**
   Dear Dr. Ibarra:
   On behalf of Associate Editor Dr. Perez-Polo, we would like to know if you would be able to review the following manuscript for possible publication in Journal of Neuroscience Research:
   "Neuroprotective effects of allicin on spinal cord ischemia-reperfusion injury via improvement of mitochondrial function in rabbits" by Zhu, Jinwen; Guan, Jianzhong; Liu, Jian (Manuscript # jnr-2012-Mar-4749)
   The abstract is copied at the bottom of this email for your reference.
   Using the links below, please let us know within five days if you are willing to review this manuscript.
   If you do choose to review this manuscript, we will contact you via email with instructions for accessing Manuscript Central, our online manuscript submission and review system. You will then have access to the manuscript and reviewer instructions in your Reviewer Center. We would ask that you complete your review within 2 weeks or before, if possible.
   If you are unable to do the review at this time, it would be very helpful to us if you could provide the name and email address of one or two colleagues, who might be able to do the review.
   This journal may refer good quality papers that we are unable to accept to the open access journal Brain and Behavior. If the authors choose to pursue this option, their submission along with the anonymous peer reviewer reports will be transferred to the Brain and Behavior editor in order to provide the author with a rapid publication decision. A primary objective for this collaboration is to lessen the burden on the already over-stretched community of peer reviewers.

   Thank you in advance for your help.
   Nancy Wainwright, Managing Editor
   Journal of Neuroscience Research

   <u>REVISIÓN</u>

The manuscript entitled "Neuroprotective effects of allicin on spinal cord ischemia reperfusion injury via improvement of mitochondrial function in rabbits" attempted to address the effect of

allicin--the main component responsible for the biological activity of garlic--on neurological, morphological and biochemical parameters observed after spinal cord ischemia/reperfusion (SC-I/R) injury. For this purpose the authors performed two experiments. In the first, Jinwen and co-workers evaluated rabbits pretreated with allicin 1, 10 or 50 mg/kg/day, and compared it to animals pretreated with saline water. Sham-operated animals were used as controls. The authors examined mean arterial pressure (MAP), arterial blood gases and blood glucose. Aside from this, they evaluated neurological recovery, infarct volume, number of motor neurons, lipid peroxidation, oxidative protein damage and the activity of CAT, SOD, GPX and GST enzymes. All of these evaluations were performed at 48 and 72 h after SC-I/R. In a second experiment, the authors examined the protective effects of allicin on mitochondrial function (4 and 24h after SC-I/R); in this case, they studied animals pretreated with allicin (50 mg/Kg/day) against a vehicle. Sham-operated animals were also used as a control group. The authors did not find a significant difference in physiological and hemodynamic parameters. According to the authors, allicin, in a dose-dependent manner, improved the neurological recovery of animals. Allicin was also capable of diminishing infarct volume and increasing the number of surviving motor neurons. Additionally, administration of allicin at different concentrations significantly alleviated the oxidative damage and improved the activity of endogenous antioxidant enzymes. Finally, Jinwen and co-workers showed that allicin attenuates mitochondrial dysfunction after SC-I/R injury.

The neuroprotective effects of allicin have already been reported by several studies (see Crit Care Med. 2008,36(12):3226-32; Crit Care Med. 2008,36(12):3275-6; Zhongguo Ying Yong Sheng Li Xue Za Zhi. 2007,23(4):402-3, 429; Zhongguo Zhong Yao Za Zhi. 2007,32(13):1314-7); therefore, the only novelty of this work is the use of the compound in SC- I/R models.

Although the present manuscript represents an important effort to demonstrate the neuroprotective effects of allicin in SC-I/R models, it also raises several concerns about the quality and the reliability of the results.

Major concerns:

1. There is no data clarifying the number of animals used to study the hemodynamic parameters or morphological and biochemical studies. According to figure legends, each evaluation was carried out in “eight experiments”. It is difficult to assume if these “eight experiments” correspond to eight animals, or well, if they correspond to eight replicates from each animal. Assuming the first possibility (eight animals), how did the authors to accomplish this? If they have eight rabbits per group how did they analyze infarct size, neuronal survival, MDA levels, protein carbonyl levels and activity of antioxidant enzymes in the same group of animals? This should be clarified.
2. Regarding motor recovery, I am concerned with the reliability of the results. Authors are using a very subjective test to evaluate motor recovery. Only 5 grades of reference are being used, even the BBB scale (evaluation used in rat models) that has 21 grades of reference is considered a subjective method. Results observed in figure 4 demonstrate the subjectivity of the method used by the authors; the recovery of all animals is better at 48 hrs than at 72 hrs after injury. In general, the recovery of the SC-injured animals increases with the passing of time. Due to the relevance of the findings it is imperative that the

authors include more objective methods (i.e. foot print analysis). Aside from this, in order to obtain a more complete neurological analysis it is important to include methods that evaluate sensory recovery.

3. Other concerns arise from the histological studies. In the case of infarct volume, there is no detailed description on the number of slices analyzed and the way the total volume was obtained. A description of the criteria used to define the infarcted area should be added. In relation to neuronal survival, the authors should describe: the number of sections/animal that were analyzed, the criteria used to define a motor neuron, the method used to abolish the double counting of neurons, etc.
4. There is no data about the method used to obtain the allicin. Did the authors purify the allicin? Or maybe they bought it? If they purified the substance then they need to describe the method.

Minor concerns:

1. There are several typographical errors, as well as some grammatical and syntax mistakes in the manuscript. It needs thorough proofreading.

2. Introduction section: SC-I/R injury is not the major cause of paraplegia, authors must correct this statement. I suggest revising more recent articles (i.e. Asia Pac J Public Health. 2010,22(1):9-18).

3. Introduction section, page 3, lines 26-31: Correct wording.

4. Introduction section, page 4, lines 23.26: Correct wording.

5. Methods section: Add information on the methods and equipment used to obtain the physiologic and hemodynamic parameters.

6. Results section: The quality of the microphotographs provided in figure 3 is quite low. The contrast and brightness should be equal. It is not possible to differentiate neurons.

7. Results section: In figures 5, 6 and 8 it would be better to describe the results with absolute values and not in percentages.

8. Discussion section: Authors should discuss the mechanisms by which allicin could be diminishing the production of ROS and increasing enzyme activity.

COMMENTS TO THE EDITOR

Since the neuroprotective effects of allicin have already been reported, the originality of the present manuscript is low. The work is complete; however, the accuracy, especially related to histological and functional evaluations, is very low. Aside from this, the experimental design is very doubtful. I do not recommend its publication.