CC: allison.diamond@jove.com

Dear Mr. Coffey,

Your manuscript JoVE51006R2 'Building an Open-Source Robotic Stereotaxic Instrument' has been peer-reviewed and the following comments need to be addressed. Please keep JoVE's formatting requirements and the editorial comments from your previous revisions in mind as you revise your manuscript to address peer review comments. For instance, if formatting or other changes were made, commercial language was removed, etc., please maintain these overall manuscript changes.

Please use the "track-changes" function in Microsoft Word or change the text color to identify all of your manuscript edits. When you have revised your submission, please also upload a list of changes, where you respond to each of the comments individually, in a separate document at the same time as you submit your revised manuscript.

Editorial comments:

1) All of your previous revisions have been incorporated in to the most recent version of the manuscript. Please download this version of the Microsoft word document from the "file inventory" to use for any subsequent changes.

2) You had indicated earlier that you may change decide to publish your article as Open source. If so, please print, sign and scan the attached Author License Agreement. Then, on the Editorial Manager site, please remove the old agreement and upload the updated agreement with your manuscript files.

Reviewers' comments:

Reviewer #1:

Manuscript Summary:

This paper by Coffey et al. provides a protocol for designs and software to economically transform an existing stereotaxic to a robotic stereotaxic. The system is designed to reduce the human error normally associated with stereotaxic surgery performed by laboratory personnel (i.e., humans). This is a well-written paper from a team of researchers highly-skilled in the stereotaxic surgery, and with the technical knowledge necessary to automatize these skills. The protocol will be of great use to researchers wishing to automate surgical protocols, particularly those with some background mechanical and software skill.

STRENGTHS:

1) The advantages of this technology are clearly described in the Introduction.

2) The step-by-step instructions are described in a straightforward manner.

3) The illustrations are clear and useful.

4) The potential value of this technology for the many laboratories that employ stereotaxic surgery as a research tool is high.

Major Concerns:

None.

Minor Concerns:

None

Additional Comments to Authors:

N/A

Reviewer #2:

Manuscript Summary:

a cnc mill is attached to a stereotax for more precise hole drilling relative to the skull

Major Concerns:

N/A

Minor Concerns:

limitations are not fully described. performance, speed, depth, size of holes, accuracy is not fully described. these should be listed in the abstract and explained in a couple of sentences each in the text

Technical specifications have been added to the Abstract [46-52], as well as to the appropriate methods sections. [89-91; 165-166; 181]. Also, a paragraph describing the limitations of the software has been added to the discussion [279-292].

Additional Comments to Authors:

N/A

Reviewer #3:

Manuscript Summary:

The manuscript by Coffey et al. provides a clever, inexpensive and novel solution to lack of accuracy, repeatability and variations between surgeons. Such an inexpensive, easy to implement and efficient solution will certainly attract attention and usability from a big audience among biomedical scientists.

Major Concerns:

The authors would probably like to mention and consider how the apparatus will perform or what adjustments will be required in order to perform thin skull windows at high medio-lateral coordinates, where the skull curvature is different than at more medial areas.

I have included a complete paragraph with technical limitations. The limitations of the included software are also discussed, and possible ways to remedy those limitations are included [279 -293]. There is no physical limitation on cutting extremely laterally (angled or curved surfaces), but the user needs to be proficient at g-coding to design the surgeries from scratch.

Minor Concerns:

N/A

Additional Comments to Authors:

Background and technique are explained. The steps presented should not become a problem for most of biomedical scientists. Limitations are also mentioned and addressed.

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Your revision is due by Jun 04, 2013.

To submit a revision, go to the JoVE submission site and log in as an author. You will see a menu item called 'Submission Needing Revision'. You will find your submission record there.

Sincerely,

Sephorah Zaman, Ph.D.

Science Editor

JoVE

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