

Remko Offringa 10/20/15

In February 2014 we became aware through publications in different media including retraction watch that the Technical Committee of Utrecht University (UTC) had found anomalies in 4 publications where Dr. Pankaj Dhonuskhe was first or last author. One of these concerned a publication in *Development* entitled “Plasma membrane-bound AGC3 kinases phosphorylate PIN auxin carriers at TPRXS(N/S) motifs to direct apical PIN recycling”, where Dhonukshe was first author and I was last author. Comments by the UTC concerned two figures, one of which (Fig 3C) was contributed by my group, and the other (Fig. 7D) was contributed by Dr. Dhonukshe, who at that time worked in the group of Prof. Ben Scheres at Utrecht University.

For a description of the anomalies I cite the text of the Correction:

“For Fig. 3C, the UTC concluded that it was the result of “cut-and-paste”, which is “not indicated by a solid line, nor is it mentioned in the figure legend, as prescribed by journal policy”. Fig. 3C presents results of in vitro phosphorylation of the different PIN2 hydrophilic loop (PIN2 HL) versions by the kinases PID, WAG1 and WAG2. The results were more or less similar for the three kinases (Fig. 3 revised version), and in order to reduce the figure size, it was decided that it would be sufficient to show the full data for the PINOID kinase, and to focus on the phosphorylation results for the wild-type version and the loss-of-phosphorylation version of the PIN2 HL for the WAG1 and WAG2 kinases. This involved splicing, and although the splicing is clearly visible in the original Fig. 3C, the appropriate presentation according to the standards of the journal would have been to leave space between the spliced parts. As demonstrated by the comparison between the revised Fig. 3 (see correction) and the original Fig. 3C, the spliced version represents part of the original data. In the revised version of Fig. 3 the full data set is shown and a more detailed description of the results is provided in the revised figure legend text.

With respect to Fig. 7D, the UTC noted that “it is not possible that random background noises, taken from two images, are identical. The most likely explanation is that the same green panel was used for the left and middle panel of Fig. 7D”. The original data were not available to the UTC, and this anomaly could not be resolved. *Development* also appointed its own independent expert to analyse the images, who concluded that “the two images are almost identical (except for the region purporting to show photoconversion) and it is highly unlikely that these could represent different time points. The analysis suggests that one of these images appears to have been generated by manipulating the other.”

For Fig3 C I have immediately provided the unspliced data (see correction) to those in charge of my Institute and the Science Faculty at Leiden University and to the *Development* editorial board. Investigation of these data by independent Leiden scientists and by *Development* confirmed the conclusions described in the Correction.

For Fig. 7D I have asked Dr. Dhonukshe to send me the original, non-modified images, and in reply I have received two tif files (not the originals) showing only the green signal in the left and middle panel of Fig. 7D. I have sent these images to *Development* and their independent investigation of the images confirmed the conclusion from the UTC (see Correction).

Based on the argument that “omission of Fig. 7D does not affect the main conclusions of the manuscript, and given that phosphorylation-triggered PIN transcytosis is only one minor aspect

of the full paper”, the editorial board of Development has decided that a Correction suffices. All co-authors, including Dr. Dhonukshe (and his lawyer), have had ample opportunity to give their input on the text of the Correction, and all co-authors, except for Dr. Dhonukshe, have agreed to the final text and publication of the Correction.