

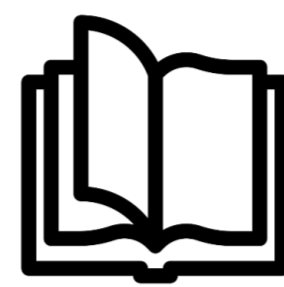
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BACKGROUND:



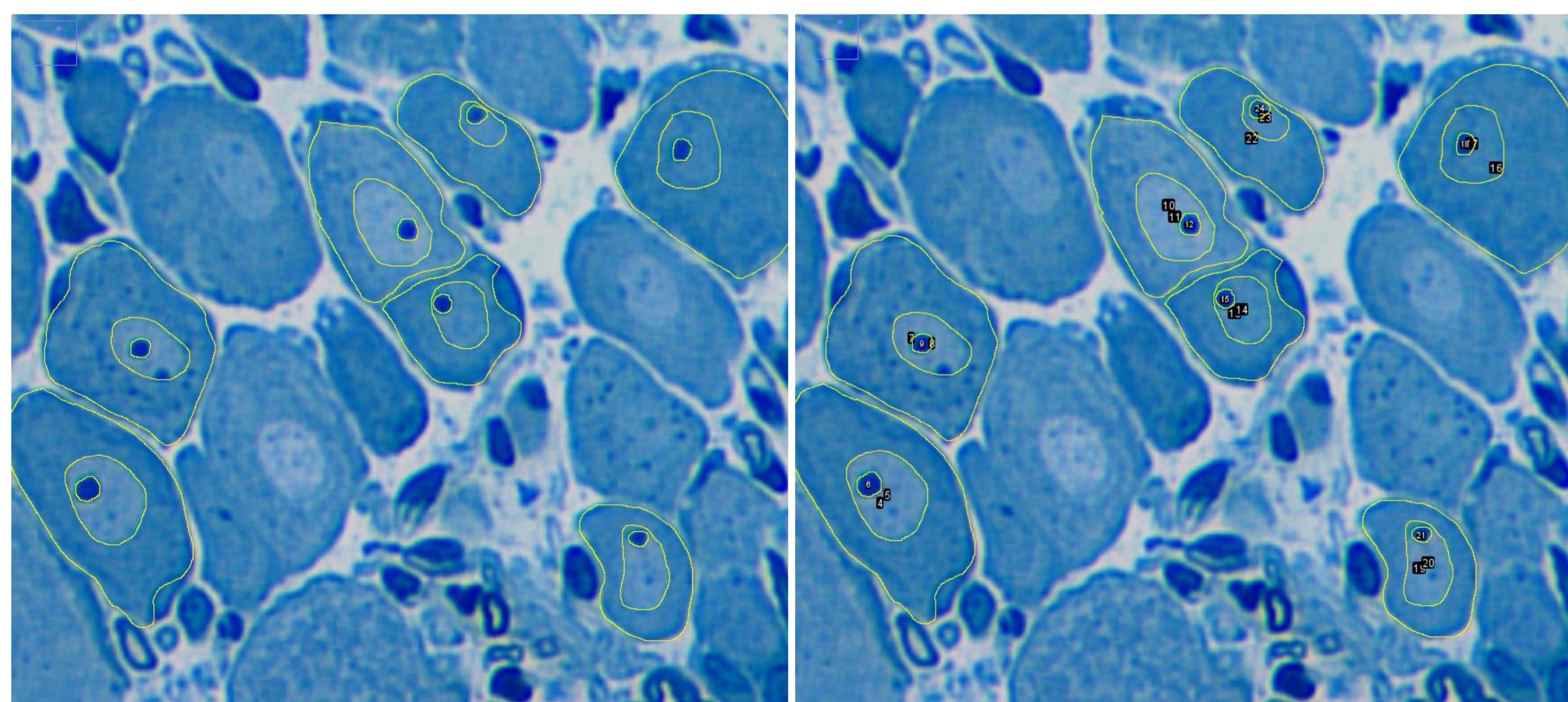
Oxaliplatin (OHP) is an anticancer drug known for causing peripheral nervous system damage [1] and it is a reliable model of neuronopathy, a condition in which it is crucial to quantify the effect size on morphometric changes in dorsal root ganglia (DRG) neurons. Since this measurement is operator-dependent [2], our aim was to refine our **standard morphometry protocol** allowing for better control of possible measurement bias and, potentially, for the development of an automated measurement method.

MATERIALS AND METHODS:

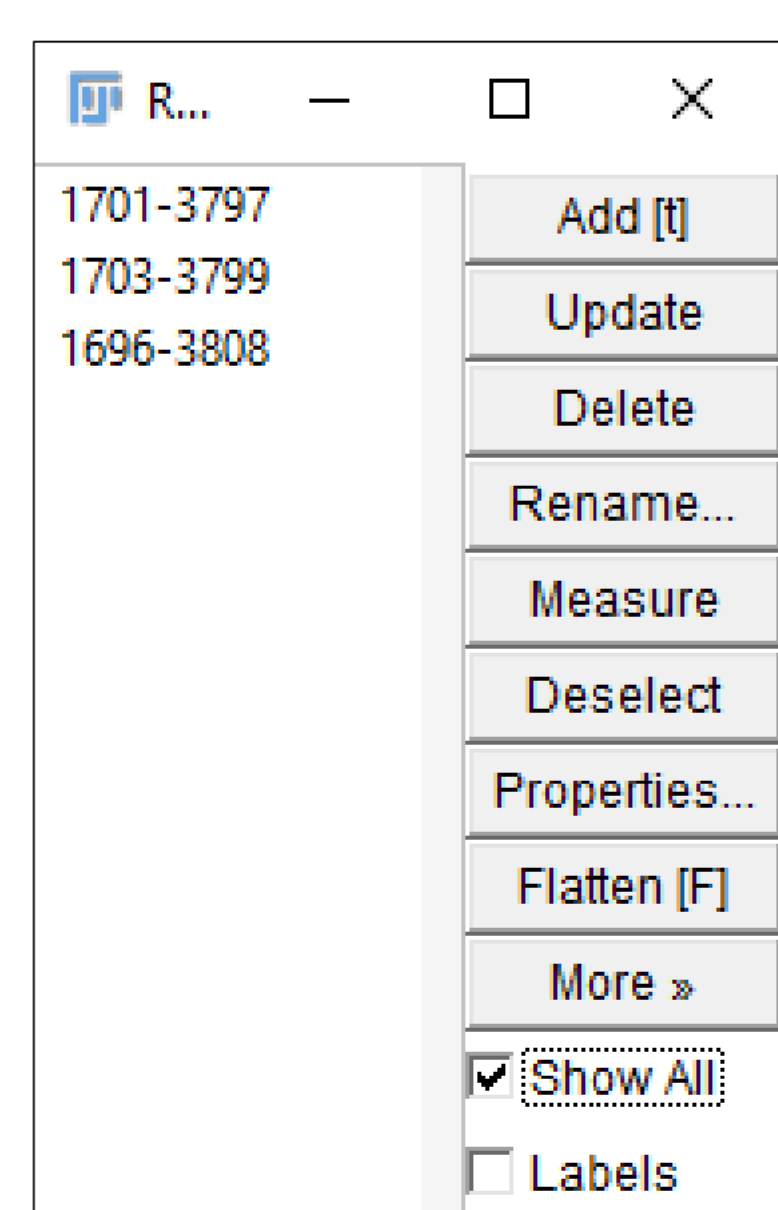


The analyses were performed on DRG obtained from mice treated with OHP (3mg/kg twice a week for 4 weeks), compared to CTRL animals. Two blinded examiners evaluated light micrographs of methylene-blue stained DRG sections acquired at the end of the treatment and after 6 weeks of follow up. *ImageJ* software was used to manually trace the outline of neuronal soma, nuclei, nucleoli, and to calculate the corresponding areas. All traces were **saved and labelled** on the images using a specific *ImageJ* plug-in, allowing to check hereafter the **accuracy** of the measurement and to identify the outlined areas.

Both examiners found a statistically significant reduction in all elements of interest (soma, nucleus, nucleolus) in OHP-treated mice at the end of the treatment, while at the end of the 6-week follow up an increase, due to a compensation mechanism, was statistically significant only in the nucleolar area of OHP-treated mice. The same level of significance was obtained by both examiners.



Area	Mean	Min	Max
19	3548	122.081	71 175
20	1039	131.374	71 150
21	74	88.149	71 138
22	3614	117.416	80 148
23	454	121.526	80 140
24	88	95.477	80 129



CONCLUSIONS:



Since very little, non-significant, difference was observed between the examiners, confirming that our approach is reliable, no post-hoc correction was required. Therefore, it was confirmed that this algorithm, enabling a persistent mark defining soma, nucleus and nucleolus areas, could be the ideal basis to implement the automatic measurement method with machine learning algorithms we are developing.

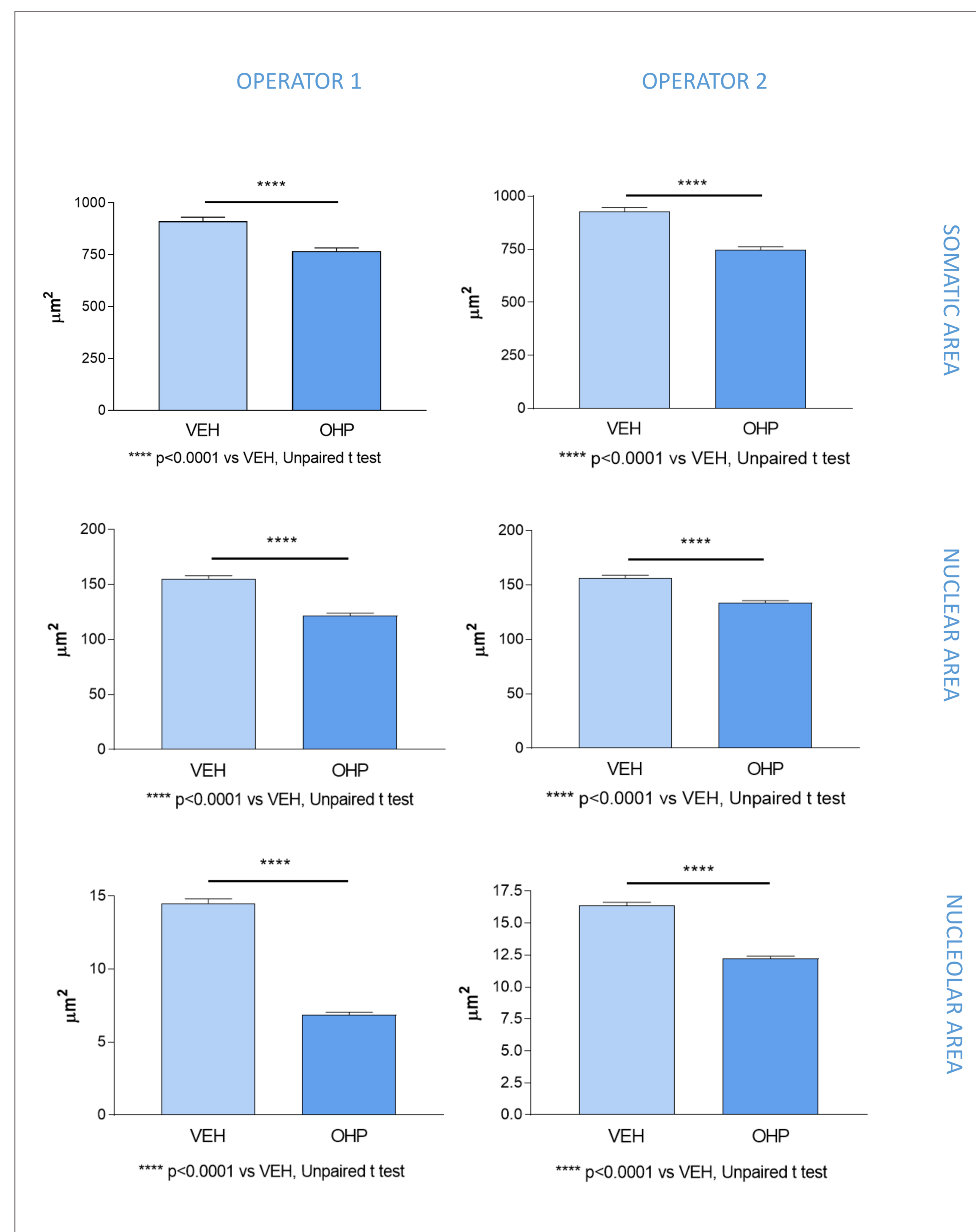
REFERENCES:

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RESULTS:



END OF TREATMENT



FOLLOW UP

