

## Subcellular distribution of melatonin receptors in rat parotid salivary glands: effect of melatonin intravenous infusion

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The ultrastructural localization of melatonin receptors Mt1 and Mt2 in human salivary glands has previously been reported (Isola et al, 2013). In the acinar cells, the intragranular distribution of these receptors suggested to us that they may serve as a transcytotic system for melatonin. In an attempt to verify our working-hypothesis we currently exposed anaesthetized rats to the intravenous infusion of melatonin for 2 hrs. After another 30 min, the parotid gland on the right side was removed to be compared with prestimulation removed pieces of the left parotid gland serving as control specimens. Parotid gland tissues from 5 rats were cut into small pieces and fixed with a mixture of paraformaldehyde and glutaraldehyde. They were dehydrated, and embedded in Epon Resin. The ultrathin sections were collected on nickel grids and incubated overnight at 4°C with an antibody specific for Mt1 and Mt2, respectively. The grids were then incubated for 1 hr with the appropriate secondary antibody conjugated to gold particles and, finally examined using electron transmission microscopy. In all sections, the immunoreactivity to Mt2 and, with less intensity, to Mt1 was principally expressed in secretory granules of acinar cells. Occasionally, plasma membranes were also stained, although slightly. Statistical analysis showed that, in response to melatonin, the immunogold particles reactive for Mt1, but not those for Mt2, increased. To conclude, in line with our hypothesis, melatonin stimulates an acinar carrier system, which seems predominantly to involve the Mt1 receptor, in order to delivery this hormone into saliva.

### References

- [1] Isola et al. (2013) Subcellular distribution of melatonin receptors in human parotid glands. *J Anat* 223:519-524.

### Keywords

Melatonin receptor, salivary glands, immunogold post embedding, electron transmission microscopy.