Cisplatin is a chemotherapeutical agent that is highly effective in the treatment of solid organ tumours, such as ovarian, testicular, bladder, non-small cell pulmonary, and head and neck tumours.

The main side effects associated with the use of cisplatin are gastrointestinal toxicity, nephrotoxicity, myelotoxicity, peripheral neurotoxicity and ototoxicity. Otoxic lesions cause bilateral neurosensory hearing loss, which is irreversible, cumulative and dosage-dependent from cochlear toxicity that affects the majority of patients exposed to the agent. It is consequently considered the most frequent dose-limiting side effect.

Topographic studies on the cochlea show that there is a lesion gradient, with the cochlear base being affected to a greater degree in comparison with the apex. This explains the fact that high frequencies are altered earlier in the audiometric study.

Otoprotective effects of many drugs are now being studied, with special interest in antioxidant agents. Our team is currently developing an experimental murine study with this objective, and preliminary results have already been obtained.

The images show epithelial dissections of 2 rat cochlea, both processed with calbindin-labelled immunofluorescence techniques, which reveal the presence of external...
ciliated cells. In the cochlea treated with cisplatin (Fig. 1), a gradual disappearance of external ciliated cells from the apex towards the base is notable (general view 4×, enlargements 40×). However, in the control cochlea (Fig. 2), the 3 strands of external ciliated cells remain intact throughout the cochlear epithelium.

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