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Analysis of Cisplatin Behavior in a Non-Small Cell Lung Cancer (NSCLC) Cell Line

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Abstract:

Cisplatin (CDDP) is an effective anticancer agent that is widely used in the treatment of testicular, ovarian, bladder and lung cancers. However the development of resistance to CDDP by tumor cells is a major obstacle to treatment. We reported that decreased accumulation of CDDP was observed in CDDP-resistant cell lines from NSCLC, and a good correlation was found between the amount of intracellular platinum and the sensitivity of lung cancer cell lines to CDDP. In the present study, to investigate the CDDP resistance mechanism, several platinum compounds were exposed to those cell lines, and we measured the cellular platinum using inductively coupled plasma mass spectrometry (ICP-MS). Furthermore, the proportion of intact CDDP in total platinum was also determined by LC-ICP-MS for pharmacokinetic study of CDDP.

Key words: cisplatin resistance, NSCLC, intracellular Pt accumulation, Pt-DNA adduct, intact CDDP



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