**Supplementary Data**

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| --- | --- | --- | --- |
| **Drug** | **[Peak Serum]** | **Supplementary**  **Reference** | **Dose in Reference** |
| **Carboplatin** | 39μM | (1) | 400 mg/m2 |
| **Paclitaxel** | 0.41μM | (2) | 135 mg/m2 |
| **Gefitinib** | 1μM | (3) | 250 mg/m2 |
| **Erlotinib** | 2.5μM | (4) | 150 mg/m2 |
| **Vinorelbine** | 0.5μM | (5) | 25 mg/m2 |
| **Pemetrexed** | 178μM | (6) | 600 mg/m2 |
| **Cisplatin** | 4.7μM | (7) | 150 mg/m2 |
| **Gemcitabine** | 20μM | (8) | 1000 mg/m2 |
| **Docetaxel** | 3.7μM | (9) | 100 mg/m2 |
| **Vorinostat** | 1.81μM | (10) | 4x400mg daily |
| **Panobinostat** | 1.5μM | (11) | 20mg/m2 |

Supplementary Table 1. Peak Serum Concentration of Chemotherapy Agents in Humans.

**Supplementary References**

1. Blochl-Daum B, Muller M, Meisinger V, Eichler HG, Fassolt A, Pehamberger H. Measurement of extracellular fluid carboplatin kinetics in melanoma metastases with microdialysis. Br J Cancer 1996;73(7):920-4.

2. Rowinsky EK, Jiroutek M, Bonomi P, Johnson D, Baker SD. Paclitaxel steady-state plasma concentration as a determinant of disease outcome and toxicity in lung cancer patients treated with paclitaxel and cisplatin. Clin Cancer Res 1999;5(4):767-74.

3. Sharma SV, Bell DW, Settleman J, Haber DA. Epidermal growth factor receptor mutations in lung cancer. Nat Rev Cancer 2007;7(3):169-81.

4. Cattel L, Airoldi M, Passera R, Cagliero E, Stella B, Goffredo F. Gemcitabine plus vinorelbine chemotherapy regimens: a pharmacokinetic study of alternate administration sequences. Pharm World Sci 2004;26(4):238-41.

5. Thodtmann R, Depenbrock H, Dumez H, Blatter J, Johnson RD, van Oosterom A, et al. Clinical and pharmacokinetic phase I study of multitargeted antifolate (LY231514) in combination with cisplatin. J Clin Oncol 1999;17(10):3009-16.

6. Tegeder I, Brautigam L, Seegel M, Al-Dam A, Turowski B, Geisslinger G, et al. Cisplatin tumor concentrations after intra-arterial cisplatin infusion or embolization in patients with oral cancer. Clin Pharmacol Ther 2003;73(5):417-26.

7. Abbruzzese JL, Grunewald R, Weeks EA, Gravel D, Adams T, Nowak B, et al. A phase I clinical, plasma, and cellular pharmacology study of gemcitabine. J Clin Oncol 1991;9(3):491-8.

8. Brunsvig PF, Andersen A, Aamdal S, Kristensen V, Olsen H. Pharmacokinetic analysis of two different docetaxel dose levels in patients with non-small cell lung cancer treated with docetaxel as monotherapy or with concurrent radiotherapy. BMC Cancer 2007;7:197.

9. Ramalingam SS, Parise RA, Ramanathan RK, Lagattuta TF, Musguire LA, Stoller RG, et al. Phase I and pharmacokinetic study of vorinostat, a histone deacetylase inhibitor, in combination with carboplatin and paclitaxel for advanced solid malignancies. Clin Cancer Res 2007;13(12):3605-10.

10. Morita S, Oizumi S, Minami H, Kitagawa K, Komatsu Y, Fujiwara Y, et al. Phase I dose-escalating study of panobinostat (LBH589) administered intravenously to Japanese patients with advanced solid tumors. Investigational new drugs 2012;30(5):1950-7.

11. Lee GY, Kenny PA, Lee EH, Bissell MJ. Three-dimensional culture models of normal and malignant breast epithelial cells. Nature methods 2007;4(4):359-65.