Title: Potential interactions between pharmaceutical anticancer therapies and plant
medicines in vitro.

Keywords: Anti-cancer; drug interactions; Cytochrome P450 3A4; herbal medicine;
botanical supplements.

Brief Description:

There is increasing evidence that many patients being treated for cancer choose to take
herbal medicines alongside chemotherapy drugs. This has raised concern for potential
herb-drug interaction. Herbs are complex mixtures of many compounds which may be
inactive or active and could potentially interact with chemotherapy drugs with positive or
negative effects. Currently, little direct evidence for such interaction has been reported and
more research is needed to provide this evidence base and identify potential risks and
benefits of herb use during chemotherapy treatment.

The aim of the study is to evaluate potential drug-herb interactions between pharmaceutical
anticancer therapies and herbs and herbal constituents in vitro.

The following objectives will be used to achieve the primary aim:

Identification of herbal medicines commonly used by cancer patients and evidence from the
literature of the pharmacologically active components in these herbal medicines

Determination of the effects of these selected plant compounds and extracts on cell
proliferation and apoptosis in vitro

Investigation of the mechanism of action of the active compounds by evaluating their
potential in up-regulating pro-apoptotic molecules and down-regulating anti-apoptotic
molecules in vitro

Determination of pharmacokinetic interactions through measuring the effect of herbal
extracts, identified compounds and chemotherapy drugs on the activity and expression of
Cytochrome P450 3A4 (CYP3A4).

Relevant publications:

Cheng C., Fan W, Ko S., Song L., Bian Z. (2010) Evidence-Based Management of Herb-

Lau C., Mooiman K.D., Maas-Bakker R.F., Beijnen J.H., Schellens J.H.M., Meijerman I.
Ethnopharmacology, 149 (2): 543-549.

Miller LG. Herbal Medicinals: Selected Clinical Considerations Focusing on Known or

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