

WHAT IS FUNCTIONAL PROFILING?

Functional profiling is a dynamic process in which living human cancer cells are exposed to chemotherapeutic drugs and targeted agents (singly and in combination) in the laboratory to determine drug sensitivity or resistance. These cancer cells are kept alive in small clusters which closely approximates the conditions found within the human body.

By selecting therapies that induce "programmed cell death" in the laboratory, you can **double** your likelihood of clinical response which can improve your chances of survival.

[Start Here](#)

How Much of a Cancer Specimen Do You Need?

As we do not grow the cancer in the lab, the more cancer cells we receive, the more drugs we can test.



Solid Tumors: 1 cubic cm or greater piece of viable tumor, i.e. solid tumor or lymph node. NOTE: Needle biopsies do not provide the quantity of tumor required.



Blood (Leukemia) Specimens: 7-10 ml of peripheral blood in EDTA or heparinized tube.

Bone Marrow Aspirate (Leukemias and Myelomas): 1-3 ml of heparinized bone marrow aspirate

Malignant Fluids: 500-1000 ml of heparinized, cytologically positive pleural or ascites fluid.

How Soon Do We Need It?

The specimen must be received at the Nagourney Cancer Institute laboratory in Long Beach, CA within 24 – 36 hours of collection while the cells are still viable. Contact the laboratory at 800-542-4357 to order a specimen transportation kit.

IMPORTANT: If shipping on Friday, please contact the laboratory for specific instructions.



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Specimen Processing

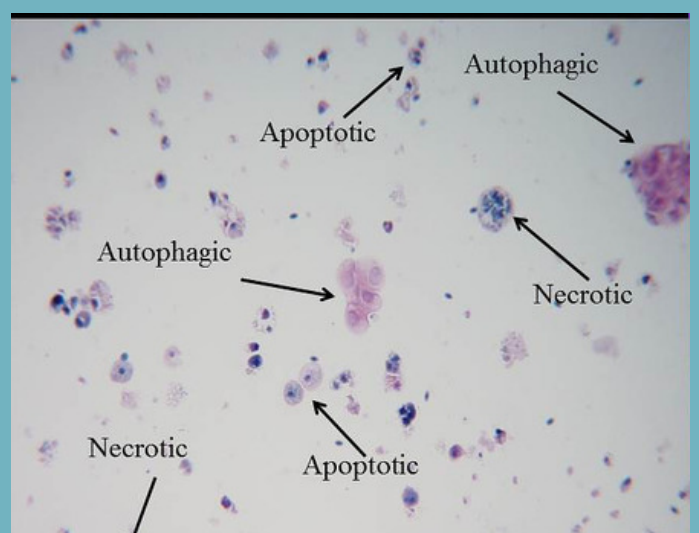


Upon receipt, tumor samples are mechanically and enzymatically separated into small clusters known as human tumor microspheroids. This maintains the cell biology allowing cell-cell, cell-stroma (connective tissue), cell-vasculature (circulatory) and inflammatory cell-cytokine exposure conditions critical for accurate prediction of drug response.

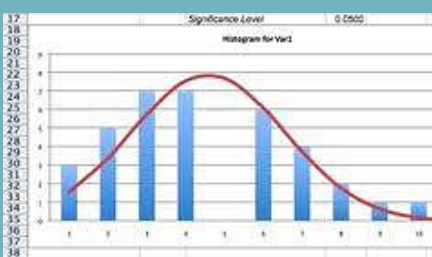
Human tumor microspheroids are then distributed into 96-well plates where they are exposed to the drugs, combinations and targeted agents used in your disease. Tissue cultures are actively monitored for 72-96 hours.

Drug Response Analyzed

Cell viability (living vs dead) following drug exposure determines which drugs most effectively kill your cancer cells. Drug induced cell death (apoptotic and non-apoptotic) is examined by morphology, cytochemistry, staining characteristics and cellular metabolism.



Cancer cells dying after exposure to effective drug treatment



Drug Response Correlated

Each patient's analysis provides drug sensitivity, resistance and formal synergy results. Data is examined in comparison with Nagourney Cancer Institute's extensive database to predict the likelihood of clinical response.

Reporting

Drug activity and synergy results are reported within 7-10 days of receipt in the laboratory.

A dictated discussion will detail the interpretation of the drug activity profile providing insights and references on the best use of the assay findings.

EVA-PCD FUNCTIONAL PROFILE			
Patient:	Sample NSCLC Patient	Assay Date:	
Di:	Non-Small Cell Lung Cancer	Assay Quality:	High Yield/Mod Viability
Prior Rx:	Treated	Report Date:	
Physician:	Your Oncologist	Specimen Number:	
SINGLE DRUG DOSE EFFECT ANALYSIS			
Drug	IC50	Units	Interpretation
Taxol	9.1	ug/ml	Sensitive
Cytosar	1.4	ug/ml	Intermediate
Caplatin	3.9	ug/ml	Resistant
Gemcitabine	238	ug/ml	Resistant
Intelectan	36	ug/ml	Resistant
MULTIPLE DRUG DOSE EFFECT ANALYSIS			
Drug	Ratio	IC50	Units Interpretation Synergy
Mitomycin-C & Intelectan	12	ug/ml	Intermediate N/A
Caplatin & Gemcitabine	25	ug/ml	Resistant Synergy
Caplatin & Intelectan	21	ug/ml	Resistant Synergy
Caplatin & Gemcitabine & Sunitinib	31	ug/ml	Resistant Antagonism
Caplatin & Taxol & Sunitinib	16	ug/ml	Resistant Antagonism
Caplatin & Taxol	6.9	ug/ml	Resistant No Synergy
Taxol & Gemcitabine	85	ug/ml	Resistant No Synergy
Gemcitabine & Taxol	6.3	ug/ml	Resistant No Synergy
Caplatin & Vinorelbine*	>25	ug/ml	Resistant N/A
Caplatin & Vinorelbine	2.3	ug/ml	Resistant N/A
INTERPRETATION:			
Laboratory results represent only one part of the overall determination of therapy for patients and do not guarantee outcomes nor indicate the specific drugs that should be used in a particular patient.			
* The following compounds serve as in vitro surrogates for their respective drug classes: e.g., Nitrogen Mustard = Cyclophosphamide, Irinotecan, Topotecan, Irinotecan, Oxaliplatin and related mustard alkylators, Caplatin = Carboplatin, Docetaxel = Docetaxel and Irinotecan, Trimetoprim = Methotrexate, Vin = Vinorelbine + Vinorelbine.			
Ex Vivo best regimen (EVRB) would be Taxol or Alkylating agent.			
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