NAME: DATE: 4.8.22 CANCER: TYPE OF CANCER AND STAGE UPDATED

GROWTH FACTORS PROLIFERATION STIMULI TUMOR RELATED GENES 27			
NAME OF EXPRESSION	% ↑ ↓	GENE RELATED TO:	POSSIBLE NUTRITIONAL SUPPORT
SS-r	↑ 20%	Somatostatin receptor	
Progesterone receptor	↑ 10%	GROWTH FACTOR RECEPTOR	PROGESTIN IS TESTED NOT BIO-IDENTICAL; ANTI-PROGESTERONE?: CAREFUL WITH CREAMS ON FATTY TISSUE
Estrogen receptor	个 15%	GROWTH FACTOR RECEPTOR	ANTI-ESTROGEN: XENOESTROGEN SOURCES (soaps; all cosmetics & skin prod) DHEA; TEA; PREGNENOLONE; CRUCIFEROUS VEG.; AVOCADOS; EGGS; COFFEE; TRIBULUS; NUTS; ↓BODY FAT; CHRYSIN; FRESH FLAX SEEDS; GRAPE SEED EXTRACT; ↓ TESTOST
p180	个 10%	TYROSINE KINASE GROWTH FACTOR	P180 is a monoclonal antibody against P-glycoprotein. LICORICE; SHARK LIVER OIL; EGCG; CURCUMIN; AMYGDALIN B-17; SOY MISO; SALVESTROL; GENESTEIN; REISHI; GAMMA E; POMEGRANATE; ANTHOCYANIDIN;
COX 2 (cyclooxygenase 2)	个40%	TUMOR GROWTH CELEBREX, VIOXX,	BOSWELLIA COMPLEX; BCQ; BEE PROPOLIS; CURCUMIN; FISH OIL ; FLAVONOIDS (APIGENIN; LUTEOLIN; GENISTEIN; QUERCETIN; EGCG IN GREEN TEA); INFLAMMA-BIOX; GRAPE SEED; PARTHENOLIDE (FEVER FEW); RESVERATROL; ECHINACEA(M-H; ALKYLAMIDES), SCULACIA (BIOTICS) FREE-B-RING FLAVANOIDS & FLAVINS
5-LOX (5 lipoxygenase	↑%	TUMOR GROWTH MONTELUKAST (SINGULAR)	GARLIC; CURCUMIN; MELATONIN; PARTHENOLIDE; RESVERATROL; BOSWELLIC ACID (BOSWELLIA COMPLEX); ECHINACEA(M-H; alkylamides)
NF _k B nuclear factor	↓ 10%	TRANSCRIPTION FACTOR	INCREASE THE IKB FACTORS BELOW
IkB (a,d,e)	↓ 10%	INHIBITOR OF NFKB GEFITINIB (IRESSA)	KAPPAREST (BIOTICS); ANDROGRAPHIS COMPLEX (MH); CURCUMIN ; KAPREX; BOSWELLIA COMPLEX; FISH OILS ; PARACTIN; ALPHA LIPOIC ACID; NrF2 ; MILK THISTLE
EGF (epidermal growth factor)	个25%	GROWTH FACTOR- phospholipase C; PI3K; Ras- GTPase and Src kinase	GRAPE SEED EXTR.; GENISTEIN ; HISTAPLEX; ANTRONEX; IP6 SAME AS VEGF Epidermal growth factor (EGF) is a key growth factor regulating cell survival. These pathways predominantly lead to activation or inhibition of transcription factors that regulate expression of both pro- and anti-apoptotic proteins effectively blocking the apoptotic pathway
Ras/Raf/MEK.Erk	个35%	mammalian target of rapamycin TRANSDUCTION PATH http://clinicalgate.com/oncoge nes-and-signal-transduction/	LOVASTATIN; RED RICE YEAST; HIGH DOSE ASCORBIC ACID; EMODIN; CELLULAR VITALITY; GENESTEIN; APIGENIN (CELERY; PARSLEY; THYME; PEPPERMINT; RUTABAGA); QUERCETIN; GARLIC; OMEGA 3 FA; CoQ10 The ubiquitous Raf serine/threonine kinases are pivotal molecules within the Raf/mitogen extracellular kinase (MEK)/extracellular signal-related kinase (ERK) signaling pathway, which regulates cellular proliferation and survival. Raf kinase isoforms (wild-type Raf-1 or the b-raf V600E oncogene) are overactivated in a variety of solid tumor types, including renal cell carcinoma (RCC), hepatocellular carcinoma (HCC), non-small cell lung cancer (NSCLC), melanoma, and papillary thyroid carcinoma.
mTOR	↑10%	Her 1; EPIDERMAL GROWTH FACTOR.	IS AN INTRACELLULAR PROTEIN THAT HAS BEEN IMPLICATED IN MULTIPLE GROWTH-RELATED CELLULAR FUNCTIONS. TORISEL [TEMSIROLIMUS]; EGCG ; CAFFEINE; CURCUMIN ; RESVERATROL (ISOLATED CELL CULTURE)
c-erb-B1 AKA HER1 EGF-r	个25%	IMMORTALIZATION	type 1 receptor tyrosine kinase (c-erbB) family has been documented in many types of cancers c-erbB1 (epidermal growth factor receptor) and c-erbB2, this has been closely linked with poor prognosis, and in particular is apparently associated with an invasive/metastatic phenotype and relative insensitivity to conventional therapies. GENISTEIN; HISTAPLEX; ANTRONEX; IP6 SAME AS VEGF; STIMULATE CELL GROWTH AND PROLIFERATION
c-erb-B2 AKA [HER2/NEU]	↑%	RESIST PHENOTYPE GLEEVEC	HERCEPTIN; EMODIN; QUERCETIN; EPO (EVEN PRIM); BCSO; YES OILS; ALL THE IGF-1 ;
Bcr-abl (个%	RESISTANT PHENOTYPE	FLAVONES (QUERCETIN); breakpoint cellular abl) cluster region
ALK	↑%	ACUTE LEUKEMIA KINASE	
EML-4-ALK	个%	FUSION EML WITH ALK	
NPM-ALK	↑%	ACUTE LEUKEMIA KINASE	
CD 117 (C-KIT)	↑ 10%	GROWTH FACTOR	
RET	↑10%	Proto-Oncogene http://clinicalgate.com/oncoge nes-and-signal-transduction/	proto-oncogenes (e.g., <i>ras</i>) and tumor-suppressor genes (e.g., <i>APC</i>) — play a key role in cancer induction, when mutated.
IGF-R-1	↑10%	INSULIN LIKE GROWTH FACTOR RECEPTOR 1	MONOTERPENES (LIMONENE; PERILLYL ALCOHOL; GERANIOL); GARLIC; FISH OIL ; IP6; DECREASE ALL SUGAR;
IGF-R-2	个25%	INSULIN LIKE GROWTH FACTOR RECEPTOR 2	MONOTERPENES (LIMONENE; PERILLYL ALCOHOL; GERANIOL); GARLIC; FISH OIL; IP6; FLAX SEED; ALA; C; E; B-COMP; ZINC; VANADIUM; ↓ BLOOD SUGAR & EAT LESS SUGAR

NR3C4-A TESTOSTERONE	个 15%	NUCLEUS RECEPTOR GROUP 3 CLASS 4 ANDROGEN RECEP. A	SOY; AVOID TRIBULUS & DHEA ; ↓ OMEGA 3 OILS; GREEN TEA; POLYPHENOL; ↓ EXERCISE;
NR3C4-B DHT	↑ 30%	NUCLEUS RECEPTOR GROUP 3 CLASS 4 ANDROGEN RECEP. B	SAW PALMETTO; PYGEUM; NETTLES; PUMPKIN SEEDS (& OIL); GREEN TEA; SOY ISOFLAVONES; BETA SITOSTEROLS; L-LYSINE; ZINC; VITAMIN D3; GLA/EPA; PLUS ALL THE TESTOSTERONE INHIBITORS.
JAK 1/2	个 15%	Single transduction pathway http://clinicalgate.com/oncoge nes-and-signal-transduction/	Janus protein tyrosine kinases (JAKs) are crucial components of diverse signal transduction pathways that govern cellular survival, proliferation, differentiation and apoptosis.
PTEN	个15%	Tumor Suppressor Gene	PTEN promotes oxidative phosphorylation and decreases glycolysis, thus preventing the metabolic reprogramming characteristic of cancer cells, which might be relevant to PTEN-mediated cancer protection. PTEN) has been shown to act as a tumor suppressor whose function includes important roles in regulating oxidative stress, indicating a potential role in oxidative damage-associated cancer. Interestingly, rosemary extract represses PTEN expression in K562 leukemic culture cells (20). Loss of heterozygosity studies have suggested that PTEN plays an important role in advanced cancers (23). In addition, alteration of PTEN in tumors is associated with a poor prognosis (24). https://www.spandidos-publications.com/10.3892/ijmm.2013.1235
c-Jun	个25%	Proto-Oncogene	Proto-oncogenes normally regulate cell division, but can be changed into oncogenes through mutation, which may cause cancers to form. Source: Boundless. "Proto-oncogenes." Boundless Biology Boundless, 26 May. 2016. Retrieved 18 Mar. 2017 from https://www.boundless.com/biology/textbooks/boundless-biology-textbook/cell-reproduction-10/cancer-and-the-cell-cycle-90/proto-oncogenes-400-11627/
c-Fos	个35%	Proto-Oncogene	See above

NAME: DATE: 12.23.16 CANCER: TYPE OF CANCER AND STAGE

	SELF REPAIR-RESISTANCE TUMOR RELATED GENES 14		
NAME OF EXPRESSION	%↑↓	GENE RELATED TO:	POSSIBLE NUTRITIONAL SUPPORT
HSP 27	个15%	HEAT SHOCK PROTEIN	ALL 3 HSP SHOW BETTER RESULTS WHEN THEY ARE DOWN REGULATED BY TESTING.
HSP 72	个25%	HEAT SHOCK PROTEIN	IF OVEREXPRESSED MAY ↓ MEMORY LOSS FROM SURGERY IN ELDERLY; VK1 AND VK2 INHIBIT HEAT-SHOCK-INDUCED HSP72 SUGGEST THEIR POSSIBLE USE AS AN ADJUVANT FOR HYPERTHERMIA IN CANCER THERAPY; BY ACTIVATING CD8+ CTL CYTOTOXIC RESPONSES AGAINST TUMORS. QUERCETIN HELPS WITH THE HEAT
HSP 90	个35%	HEAT SHOCK PROTEIN	SEEMS MOST IMPORTANT OF THE 3; ESPECIALLY WITH RADIATION; SHOULD CONSIDERING USING FAR INFRA RED SAUNA 5 DAYS A WEEK; ALPHA LIPOIC ACID; QUERCETIN
Gamma GC (gene for drug resistance)	↑%	RESIST TO ALKYLATING DRUG	Gamma GC (gene for drug resistance); DMSO; MSM
DNA METHYLTRANS- FERASE 1	↑%	DNA METHYLATION 5-AZACYTIDINE (5-AZ) CHEMO DRUG	DMSO; MSM (JACOBS ORAL OR IV) OR JUST IV DMSO; ORGANIC SULPHUR; SAMe; CHOLINE; B-12; FOLATE; METHIONINE; Over control==hypomethylation so use CURCUMIN, EGCG
DNA DEMETHYLASE	个%	DNA METHYLATION 5-AZACYTIDINE (5-AZ) CHEMO DRUG	DMSO; MSM (JACOBS ORAL OR IV) OR JUST IV DMSO; ORGANIC SULPHUR; SAMe; CHOLINE; B-12; FOLATE; METHIONINE; Over control==hypomethylation so use CURCUMIN, EGCG
06-METHYL-DNA- TRAN	个 30%	DNA METHYLATION	BOSWELLIA COMPLEX; BCQ; BEE PROPOLIS; CURCUMIN; FISH OIL; FLAVONOIDS (APIGENIN; LUTEOLIN; GENISTEIN; QUERCETIN; EGCG IN GREEN TEA); INFLAMMA-bLOX PARTHENOLIDE (FEVER FEW); RESVERATROL; ECHINACEA(M-H; ALKYLAMIDES
TGF-b (transforming growth factor-beta)	个55%	TUMOR GROWTH SURAMIN SULFATE	VIT A (ATRA); GENISTEIN ; MONOTERPENES (PERILLYL ALCOHOL); COATS ALOE. (PSK) EPIMUNE; RESVERATROL ; D ₃ ; QUERCETIN ; CURCUMIN ; MELATONIN ; IP6 Transforming growth factor−β (TGF-β) superfamily members regulate a plethora of developmental processes, and disruption of their activity has been implicated in a variety of human diseases ranging from cancer to chondrodysplasias and pulmonary hypertension.
Histone deacylase dipeptide	↑↓%	DNA COILING (nucleosome) Published online 2014 Oct 14. doi: 10.3390/nu6104273	GARLIC; CURCUMIN; MELATONIN; PARTHENOLIDE; RESVERATROL; BOSWELLIC ACID (BOSWELLIA COMPLEX); ECHINACEA(M-H; alkylamides; Histone deacetylases (HDACs) regulate the expression and activity of numerous proteins involved in both cancer initiation and cancer progression. Inhibitors of HDACs have been found to cause growth arrest, differentiation and/or apoptosis of many tumours cells by altering the transcription of a small number of genes.
HDAC	↑%	HISTONE DEACETYLASE	Over control==hypomethylation so use CURCUMIN, EGCG
НАТ	↑%	HISTONE ACETYL TRANSFERASE	Over control==hypomethylation so use CURCUMIN, EGCG
CXCR4	↑ 10%	Resistant Phenotype	Tumor growth & mets The CXCL12/CXCR4 axis is involved in tumor progression, angiogenesis, metastasis, and survival.

CXCR12	↑ 25%	Resistant Phenotype	Stromal cell derived factor 1 (SDF-1) binds to CXCR4. The binding of CXCL12 to CXCR4 induces
			intracellular signaling through several divergent pathways initiating signals related to chemotaxis,
			cell survival and/or proliferation, increase in intracellular calcium, and gene transcription.
CXCL12	个 10%	Resistant Phenotype	The binding of CXCL12 to CXCR4 induces intracellular signaling through several divergent pathways
			initiating signals related to chemotaxis, cell survival and/or proliferation, increase in intracellular calcium, and gene transcription. The CXCL12/CXCR4 axis is involved in tumor progression, angiogenesis, metastasis, and survival. This pathway is a target for therapeutics that can block the CXCL12/CXCR4 interaction or inhibit downstream intracellular signaling. Clin Cancer Res; 16(11); 2927–31. ©2010 AACR.

	ANGIOGENESIS TUMOR RELATED GENES 5			
VEGF (vascular endothelial growth factor	个65%	ANGIOGENESIS	ALL THE P16 ; APOPTOSIS +ANTHOCYANIDIN; BUTCHER'S BROOM; HORSE CHESTNUT; PROANTHOCYANIDINS; GOTU KOLA; FEVERFEW; ARTEMISININ ; VASCUSTATIN; SHARK LIVE OIL; GRAPE SEED OIL; NAC ; BILBERRY; HISTAPLEX OR ANTRONEX; GENISTEIN	
FGF (fibroblast growth factor)	个55%	ANGIOGENESIS	SAME AS VEGF	
PDGF (platelet derived growth factor)	个50%	ANGIOGENESIS	SAME AS VEGE; VIT. K; SILYMARIN; CURCUMIN; EGCG;	
ANG 1	↑30%	ANGIOGENIN-1	GUM ARABIC (Acacia senegal); LACTOFERRIN (IgG 2000), NU-MEDICA PRP CHEWABLES/SPRAY/POWDER	
ANG 2	↑20%	ANGIOGENIN-2	SAME AS ABOVE	

	CELL CY	CLE REGULATION & IMM	ORTALIZATION/APOPTOSIS TUMOR RELATED GENES 9
E2F1	↑35%		
CDC6	↑10%	Initiation of DNA replication	
P27 (gene of the cycle-dependent kinase inhibit	↑35%	CELL ARREST	ATRA (all trans retinoic vitamin A;; can be toxic) get from Pharmacy Compounding; Possibly can use 300;000 IU AeMulsion FLAVONOIDS (apogenin; genistein; EGCG); SILYMARIN ; VITAMIN D3; VITAMIN E SUCCINATE; CATAPLEX A (water & oil sol) Note: regarding P27 expression - Low value means fast-growing, high value means slow growing
P53 (gene; DNA gene guardian)	个25%	CELL CYCLE REGULATOR	MELATONIN; CURCUMIN; RESVERATROL; GINSENOSIDES; VIT E SUCCINATE; ↓ IRON &/OR COPPER; RETINOIC ACID; FOLATE; ?SAMe (METHYL DONOR); I3C; CRUCEFEROUS FOODS; EGCG; GARLIC; SILYMARIN; GAMMA E; GRAPE SEED; NAC; QUERCETIN; SELENOMETHIONIN
P16 (tumor suppressor gene; stops tumor cell death)	个15%	APOPTOSIS	BOSWELLIA COMPLEX; GARLIC; CURCUMIN; EPA/DHA; CAPE; FLAVONOIDS; HYPERICIN; MONOTERPENES; RESVERATROL; SELENIUM; VIT C; & E (+SUCCINATE); GLUTATHIONE ENHANCE AGENTS; MELATONIN; PARTHENOLIDE; ALPHA LIPOIC ACID; EMODIN; PERILLYL ALCOHOL; CELLULAR VITALITY
BCL-2	个25%	Anti-apoptotic gene	THE B-CELL LEUKEMIA/LYMPHOMA-2 GENES; RESPONSIBLE FOR BLOCKING APOPTOSIS IN NORMAL CELLS; AND ASSOCIATED WITH FOLLICULAR LYMPHOMA WHEN OVEREXPRESSED. IF HIGH IN CANCER CELLS THEY ARE LESS SENSITIVE TO SUGAR DEPRIVATION. GRAP S EXT
H-TERT HUMAN TELOMERASE M2	↑10%	CELLULAR ENZYME; AGGRESSIVE; EXCESSIVE LIFE SPAN	HYPERTHERMIA; LIGAND (CHLOROPHYLL; B-12; EDTA); ORGAN SPECIFIC PMG'S; RNA (SP; BIOTIC); CURCUMIN ; HYPERICIN; TUNA OIL; SELENIUM ; VIT. E (UNIQUE E); CAPE; FLAVONOIDS (APIGENIN; LUTEOLIN; QUERCETIN; GENISTEIN; A EGCG); IP6
Bax	↑15%	Apoptosis	
CD95 (fas-r)	↑15%	Apoptosis related receptor	

NAME: DATE: 12.23.16 CANCER: TYPE OF CANCER AND STAGE

NAME OF	% ↑ ↓		
EXPRESSION		GENE RELATED TO:	POSSIBLE NUTRITIONAL SUPPORT

	ANGIOGENESIS-METASTASIS TUMOR RELATED GENES 5			
KISS-1-r	↓ 25%	derived peptide receptor Kisspeptin receptor METS REGULATOR	PITUITROPHIN PMG; HYPOTHALAMUS PMG	
Nm23 nonmetastatic gene 23	↓10%	expression is strictly related to the growth state of the cells mets regulator	NM23.HI GENE HAS BEEN PROPOSED AS A SUPPRESSOR OF METASTATIC ABILITY IN TUMOR CELLS	
MMP (matrix metalloproteinase)	个25%	Multi-Resistance Protein METASTASIS	CORIOLUS MUSHROOM-EPIMUNE (PSK); PANAX GINSENG ; EMODIN; BROMELAIN; EDTA INTENZYME FORTE ; ASTRAGALUS; ANTHOCYANIDIN (BERRIES-BLUE; BILBERRY; ELDER) IN PALEO-GREENS; DEEPER GREENS++P16; VEGF; LAMONICA; POLYERGA; RESVERATROL ; EGCG ; METFORMIN ; CURCUMIN ; BOVINE CARTILAGE;	
с-МЕТ	↑ 20%	MESENCHYMAL TO EPITHELIAL TRANSITION	If positive on Oncotrace or Oncotrails—consider the high probability the cancer was attempting metastasis at time of blood draw. If it is HIGH RISK+ under this section on Onconomics report then the interpretation is when undergoing metastasis it will be even more aggressive to the % on the report!	
67LR	↑%	67 LAMININ RECEPTOR		

		DRUG METABOLISM	S & TARGETS TUMOR RELATED GENES 13
CES1&2 carboxyesterase	↓25%	RESIST CAMPTOTHECIN 5-AZACYTIDINE (5-AZ) CHEMO DRUG	DMSO; MSM (JACOBS ORAL OR IV) OR JUST IV DMSO; ORGANIC SULPHUR
DPD dihydropyrimidine dehydrogenase	↑↓%	RESIST TO 5FU	RETINYL PALMITATE (72;000 IU/D): AKA (Ae MULSION FORTE)
UP Uridine phosphorylase	↑ ↓%	RESIST TO 5FU	
NP Nucleoside phosphorylase	↑ ↓%	RESIST TO PYRIMIDINE ANTAGONIST	
TP (thymidine phosphorylase)	↑↓20%	RESIST TO 5FU	SAME AS DPD
TS	↑25%		
DHFR (dihydrofolate reductase)	↑10%	RAPID CELL CYCLE (THFA)	GREEN TEA (EGCG) SIMILAR TO METHOTREXATE; BLOCKS DHFR.
SHMT serine Hydroxymethyl- transferase)	↑10%	RAPID CELL CYCLE (THFA)	PLP (B6); + D-CYCLOSERINE (SEROMYCIN); In combination helps both THF & T-Suppressor
GARFT	↑15%	RAPID CELL CYCLE (THFA)	Glycinamide ribonucleotide formyl transferase
RIBO-NUCLEO- SIDEREDUCTASE	↑ ↓%	DNA SYNTHESIS	
CypB1	↑ 30%	XENOBIOTIC METABOLISM	
ERCC1	个%	DNA REPAIR MECHANISM	Increased amounts (over control) usually indicates a greater resistance to the platinum chemo drugs.
RRM1	↑15%	NUCLEOTIDE POLYMERIZATIONS	

		MARKEI	RS TUMOR RELATED GENES 7
CD33	↑%	MYELOID CELL ORIG	
CD52	↑%	LYMPHOMA RELATED ANTIGEN	
CD20	↑ 40%	LYMPHOMA RELATED ANTIGEN	
EPCAM EPITHELIAL MARKER	↑10%	EPITHELIAL CELL ADHESION MOLECULE the higher the ↑ the higher the chance of bone mets and stronger the cell adhesion	PKC (PROTEIN KINASE C)—CAPE; CURCUMIN; EMODIN; QUERCETIN; EGCG; HYPERICIN; FISH OILS; SELENIUM; VIT E.; MODIFIED CITRUS PECTINS; VIT. A→ALL TRANS RETINOIC ACID; PTK (PROTEIN TYROSINE KINASE)—CURCUMIN; EMODIN; GENISTEIN; QUERCETIN; EGCG; HYPERICIN (LIGHT ACTIVATED); RESVERATROL; MELATONIN; D₃ (1;25 OH)

PD-L1	个25%	IMMUNOREGULATORY FACTOR	
PD-1	↑15%	IMMUNOREGULATORY FACTOR	
PD-L2	个15%	IMMUNOREGULATORY FACTOR	

<u>CLINICAL PEARLS</u>: CAUTIOUS WITH VIT. C (IV'S) & CERTAIN CHEMO DRUGS BASED ON the 1/2 life of the drug; ↓CU++ & ↑ZINC IN ALL CANCERS; AVOID EXCESS IRON (LACTOFERRIN & MOLYBDENUM WILL ↓); GIVE COPPER LIVER CHELATE 2 TABLET (4 mg) 1 HOUR BEFORE IV VIT. C-INCREASES EFFECTS:

Work most often: genistein, garlic forte, fish oils, curcumin, quercetin, green tea, ALA, artemisinin, resveratrol, D3, melatonin, intenzyme, epimune, cellular vitality, milk thistle, boswellia, grape seed extract, OPC synergy, EPO, RNA, PMG's

MDR1—USE ABCG2 INHIBITORS—MOSTLY THE FLAVONOIDS—i.e. QUERCETIN, CURCUMIN, ALLICIN, CAPSAICIN, GENISTEIN, GINGEROL, HESPERETIN (FLAVANONES) - TANGELO, ORANGE JUICE, TANGERINE JUICE, LEMON JUICE), KAEMPFEROL – (RAW GINGER, RAW ENDIVES, RAW SPINACH), RESVERATROL, RUTIN, ONIONS, DARK CHOCOLATE >70% COCOA, BLACK TEA, GREEN TEA, GINGKO,), PARSLEY, BLUEBERRIES, CITRUS, RED WINE, THYME, PARSLEY.

The drug VERAPAMIL or KETOCONAZOLE has also been shown to work over many years for MDR1 with RGCC testing.