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LIST OF ABBREVIATIONS

ADH	Alcohol Dehydrogenase
AIF	Apoptosis Inducing Factor.
Apaf-1	Apoptotic Protease Activating Factor 1.
Apo-1	Activator Protein 1.
ATP	Adenosine Triphosphate.
At-RA	All-trans retinoic acid.
At-retinol	All-trans retinol.
AURKB	Aurora kinase B
AVED	Ataxia with vitamin E deficiency.
Bad	Bcl-2-associated death promoter
Bak	BCL2-antagonist/killer
Bax	Bcl-2-associated X protein
BC	Breast Cancer
Bcl -2 protein	Anti-apoptotic protein
Bcl-2 family	Apoptosis regulator Bcl-2
BclXL	B-cell lymphoma-extra large
BH (1-4)	Bcl-2 Homology Domains.
Bid	BH3 interacting-domain death
Bik	Bcl-2-interacting killer
BIR	Baculovirus IAP repeat.
BMI	Body Mass Index.
Bok	Bcl-2 related ovarian killer
BRCA 1	Breast Cancer Gene 1.
Ca ⁺²	Calcium ion.
CAD	Caspase-Activated DNase.
CARD	Caspase Recruitment Domain
Casp	Caspase.
CD95	Cluster of Differentiation 95
CDK	Cyclin-dependent Kinase.
CFDNA	Circulating Cell-free DNA.

CH11	Agonistic anti-Fas antibodies
COX	Cytochrome Oxidase.
CPC	Chromosomal Passenger Complex
CRABP	Cellular Retinoic Acid Binding Protein
CRBP II	Cellular Retinol-binding Protein II.
C-terminal	Carboxy-terminal
Cyt c	Cytochrome c.
Cytc ox	Oxidized cytc
Cytc red	Reduced cytc
dADP	Deoxy Adenosine DiPhosphate
dATP	Deoxy-Adenosine Triphosphate.
DFF	DNA Fragmentation Factor.
DIABLO	Direct IAP binding protein with low pI
DISC	Death-induced Signaling Complex.
DNA	Deoxyribo Nucleic Acids.
DNase	DNA nucleases.
DR 3-6	Death Receptors 3-6.
E2	Estradiol.
EBV	Epstein-Bar virus.
EPIC	European Prospective Investigation of Cancer.
ER	Estrogen receptor.
EnR	Endoplasmic reticulum
ERE	Estrogen-Responsive Element.
ETC	Electron Transport Chain.
FAC	5-Fluorouracil, Adriamycin, Cyclophosphamide.
FADD	Fas-associated Death Domain.
FasL	Fas ligand.
FLIP	FLICE-inhibitory protein.
G1	Growth phase 1 of cell cycle.
G2	Growth phase 2 of cell cycle.
GADD	Growth Arrest and DNA Damage
GSH	Glutathione.

HBXIP	Hepatitis B X-interacting protein.
HDL	Hig-Density Lipoproteins
HER-2	Epidermal growth factor receptor 2.
HIF-1 α	Hypoxia-inducible Factor-1 alpha.
HIF-1 α	Factor-1 alpha
HRT	Hormone Replacement Therapy.
Hsp 90	Heat shock protein 90.
IAP	Inhibitor of apoptosis.
IARC	International Agency for Research on Cancer.
ICAD	Inhibitor of Caspase-Activated DNase.
IL- 3	Interleukin -3
IP3	Inisitol Triphosphate.
Kb	kilo base
LDL	Low-density lipoproteins
LMCs	Low-and middle income countries.
Lys	Lysine.
M	Mitotic phase of cell cycle.
Mb	Mega base
Mdm2	Murine double minute 2.
Mg ⁺²	Magnesium ion.
mRNA	messenger RNA
NAD	Nicotinamide Adenosine Dinucleotide.
NCI	National Cancer Institute.
NES	Nuclear Export Signal.
NLS	Nuclear Localization Signal.
NOS	Nitrogen reactive species
Noxa	Phorbol- 12-myristate-13-acetate-induced protein 1.
N-terminal	Amino-terminal
NUC	Nucleases.
OCs	Oral contraceptives.
17p13.1	Short arm of chromosome 17.
p16 INK4	Inhibitor of cyclin-dependent kinase 4.

p21	Tumor suppressor protein 21.
P21/WAF 1	Cyclin-dependent kinase inhibitor 1.
PCAF	p300/CBP associated factor
PCNA	Proliferating Cell Nuclear Antigen
PCR	Polymerase Chain Reaction.
pI	Isoelectric Point.
PKA	Protein kinase A
Puma	P53-upregulated modulator of apoptosis.
RA	Retinoic Acid.
RALDH	Retinaldehyde dehydrogenase
RAR	Retinoic acid receptor
RARE	Retinoic acid response element
Rb	Retinoblastoma
RBP,	Retinol binding protein;
RE	Retinyl Esters.
RNA	Ribonucleic Acid.
Rol	Retinol.
ROS	Reactive Oxygen Species.
RRE	Retinoid Response Element.
RRs	Retinoid receptors.
RXR,	Retinoid X receptor
S phase	DNA synthesis phase of cell cycle.
SDR	Short-chain dehydrogenase/reductase
Smac	Small mitochondria-derived activator of caspases
Stat-3	Signal Transducer and Activator of Transcription-3.
<i>STRA</i>	Retinoic acid gene
TCF	T-cell factor
Thr	Threonin.
TMPD	Tetramethylphenylenediamine.
TNF	Tumor Necrosis Factor.
TNFR1&2	Tumor Necrosis Factor Receptor 1 & 2.
TP53	Tumor suppressor protein.

TPA	12-O-tetradecanoylphorbol 13-acetate.
TRAIL	TNF-related apoptosis-inducing ligand
TTR	Transthyretin.
UV	Ultraviolet Radiation.
VLDL	Very low-density lipoproteins
XIAP	X-linked inhibitor of apoptosis protein
Zn ⁺²	Zinc ions.

تقييم التأثير المحتمل لفيتامين A و E على موت الخلايا المبرمج في مريضات سرطان الثدي

رسالة

مقدمة إلى معهد البحوث الطبية

ايفاء جزئيا للحصول على

درجة دكتوراه الفلسفة

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الكيمياء الطبية التطبيقية

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