

**S1 Table:** List of Mixtures with information about Compounds

Mixture No.	Compound Name
Mixture 1	2-(carboxymethyl)benzoic acid catechin hydrate (compound 1).
Mixture 2	Tetrahydroxy-1,4-quinone monohydrate sodium (4-( <i>N</i> -thiazol-2-ylsulfamoyl) phenyl) amide Indanol Thymol
Mixture 3	D, <i>L</i> -Camphene (+)-Menthofuran Plumbagin Sclareol
Mixture 4	3,4-dihydroxy- <i>L</i> -phenylalanine, 2- benzylphenol, and 4-(phenyl amino)phenol (compound 2)
Mixture 5	2,2,6,6-tetramethyl-4-piperidinol 3-hydroxypyridine 3-Hydroxy-4-methoxybenzyl alcohol sodium (4-aminophenylsulfonyl) (quinoxalin-2-yl) amide
Mixture 6	Troloxerutin; 3', 4', 7-Tris[O-(2-hydroxyethyl) rutin 2,2,6-trimethylpiperidin-4-one hydrochloride 3-ethoxy-4-hydroxybenzaldehyde
Mixture 7	bromofenac sodium, 2,3,4-trihydroxybenzophenone (Compound 3).
Mixture 8	1-Hydroxy-2-naphthoic acid 8-hydroxyquinoline-5-sulfonic acid mono hydrate 3-hydroxypyridine 2,2,6,6-tetramethyl-4-piperidinol
Mixture 9	sitagliptin and 4-hydroxynaphthalene-1,2-dione (Compound 4).
Mixture 10	3-hydroxy-4-nitrobenzoic acid (2,2,6-trimethylpiperidin-4-one hydrochloride (Ethoxymethylene-malononitrile Cholesteryl acetate
Mixture 11	desloratadine and <i>N</i> -(4-amino-2,5- diethoxyphenyl)benzamide (compound 5)
Mixture 12	Nimesulide ( <i>p</i> -Toluidine hydrochloride
Mixture 13	(+)-Bicuculline Baicalein

	Sesamol (-)-Nicotine pestanal
Mixture 14	5-Chloro salicylic acid, (Compound 6) 4-Hexylresorcinol
Mixture 15	Salicylaldehyde hydrazine <i>Bis (m-nitro phenyl) Disulfide</i>
Mixture 16	Biphenyl-2-carboxylic acid 3,5-dimethoxy-4-hydroxy benzaldehyde m-methoxycinnamic acid (4-biphenyl)-2-propanol
Mixture 17	(4-(trifluoromethyl)phenyl) methanol, compound 7, 4-methylbenzenesulfonamide, compound 8, <i>p</i> -tolyl acetic acid, 5-indanol.
Mixture 18	1-Amino-2-naphthol-4-sulfonic Acid 3-Amino-4-methoxybenzamide Alizarin(1,2-Dihydroxy-anthraquinone) Anisic Acid (4-Methoxybenzoic acid)
Mixture 19	3-Bromo-4-chlorobenzotrifluoride 5-Bromo-3-hydroxyoxindole 2-Bromo-4,5-methylenedioxcinnamic Acid (5(4)-amino-4(5)- (amino carbonyl)-imidazole hydrochloride
Mixture 20	2,4,6-tribromoaniline 4,4' BiPiperidyldihydrochloride <i>p</i> -Thiocresol 2-Mercaptopyridine N-oxide-sodium salt hydrate
Mixture 21	Benzyl Carbamate Salicylaldehyde hydrazine Methyl gallate
Mixture 23	(-)- <i>N, N, N</i> -Tetramethyl-D-tartaramide ( <i>L</i> (-)- thiazolidine-4-carboxylic acid: (2-oxo-2 <i>H</i> -chromene-3-carboxylic acid
Mixture 24	4-Hydroxy-3-methoxybenzyl alcohol: 3,7-dimethyl-1 <i>H</i> -purine-2,6(3 <i>H</i> ,7 <i>H</i> )-dione:
Mixture 25	Cresol red ( <i>E</i> )-2-hydroxy-5-((4-( <i>N</i> -pyridin-2-ylsulfamoyl) phenyl) diazenyl) benzoic acid: ( <i>L</i> (-) Menthol :
Mixture 26	5-hydroxy-2-nitrobenzaldehyde, compound 9, 2,3,5,6-tetramethyl pyrazine, 3-(trifluoromethyl) phenyl acetic acid, and 2,3,5,6- tetramethylbenzene-1,4-diamine.
Mixture 27	2-mercaptopyrimidine 1,3,5-triazine-2,4,6-triamine 1-naphthol-3,6-disulfonic acid, disodium salt 5-chloro-8-hydroxyquinoline

Mixture 28	4-hydroxy-3-nitronaphthalene-1-sulfonic acid tetra hydrate: (4-hexylbenzene-1,3-diol: (Sodium ( <i>E</i> )-4,5-dihydroxy-3-((4-sulfonatophenyl) diazenyl) naphthalene-2,7-disulfonate:
Mixture 29	guaifenesin, clioquinol, nicotinic acid compound <b>10</b> , and serotonin HCl.
Mixture 30	( <i>p</i> -Tolyl-hydrazine hydrochloride: (3-Bromo-5-chloro Salicylaldehyde: (2-Bromo-5-fluorobenzaldehyde:
Mixture 31	(3-(4-hydroxyphenyl)-propionic acid (4-Ethyl benzoic acid
Mixture 32	Salicin (4-[4-(trifluoromethyl)-phenoxy] phenol: 2-mercaptonicotinic acid <i>p</i> -Methoxycinnamic acid (Compound <b>11</b> )
Mixture 33	(2-(4-biphenyl)-2-propanol: (Nicotinic acid:
Mixture 34	(4-Amino-2,6-dibromophenol (2- <i>n</i> -propylphenol
Mixture 35	( <i>N</i> -(Benzyloxycarbonyloxy) succinimide (2. 2-amino- <i>p</i> -cresol
Mixture 36	(Bis(4-hydroxyphenyl)sulfide (Phloroglucinol dehydrate
Mixture 37	(Benzoin (Anisic Acid (4-Methoxybenzoic acid
Mixture 38	hydroquinone compound <b>12</b> ) Vitamin A Palmitate

**S2 Table:** Cytotoxic activity of compounds towards BJ and HCT116 Cells

Compound	BJ Cell line	HCT-116	IC <sub>50</sub> ± SEM (μM)
Compound 1	NC*	NC	-
Compound 2	NC	Cytotoxic	81.9 ± 0.39
Compound 3	NC	Cytotoxic	222.5 ± 8.1
Compound 4	NC	NC	-
Compound 5	NC	Cytotoxic	143 ± 1.94
Compound 6	NC	NC	-
Compound 7	NC	NC	-
Compound 8	NC	NC	-
Compound 9	NC	NC	-
Compound 10	NC	NC	-
Compound 11	NC	NC	-
Compound 12	NC	Cytotoxic	31.11 ± 9.9
<b>Tunicamycin</b>	-	Cytotoxic	<b>0.22 ± 0.78</b>
<b>Cyclohexamide</b>	Cytotoxic	-	<b>0.20 ± 0.10</b>

Tunicamycin was used as a reference compound against HCT116 cells while Cyclohexamide was used as reference compound against BJ cells,

(NC\*= non- cytotoxic).

**S3 Table:** Sequence of genes studied for the RT-PCR

Primer for gene	Sequence
GAPDH-forward	5'-cacatggcctccaaggagtaa-3'
GAPDH-reverse	5' cttcaaggggtctacatggca-3'
MDM2- forward	5'-gaacttggtagtagtcaatcagc-3'
MDM2-reverse	5'-gcctgatacacagtaacttgata-3'
p53-forward	5'-ctcctggcccctgtcatcttc3'
p53-reverse	5'-agcgcctcacaacctccgta-3'
c-Myc- forward	5'-cttctctccgtcctcggattct-3'
c-Myc-reverse	5'-gaaggtgatccagactctgacctt-3'

USP7-forward	5'-ctctcagaccatgggatttcac-3'
USP7-reverse	5'-attggtgttagatatccccacag-3'

S4 Table : Reported biological activities of compounds that interact USP7 enzyme.

<b>Compound Code</b>	<b>Biological Activity</b>
Compound 1 (ss075)	Anti-oxidant, anti-cancer, and in-vitro anti-epileptic activities
Compound 2 (Ss043)	<i>In-vitro</i> anti-microbial activity
Compound 3 (ss046)	Negatively modulate the activity of p8 subunit of transcription factor
Compound 4 (ss054)	<i>In-vitro</i> anti-microbial activity
Compound 5 (SS039)	Anti-microbial, analgesic, and anti-inflammatory activities
Compound 6 (AAB407)	<i>In-vitro</i> anti-microbial activity
Compound 7 (AAB431)	Anti-bacterial, anti-cancer, anti-oxidant activities
Compound 8 (AAB430)	<i>In-vitro</i> anti-microbial activity
Compound 9 (AAB438)	Xanthine oxidase inhibitory activity
Compound 10 (DB075)	For curing pellagra disease
Compound 11 (AAB422)	<i>In-vitro</i> anti-microbial activity
Compound 12 (DB190)	For curing hyper-pigmentation