

## In vitro studies

Topic	Y (TR-164)	Y (ORSAA/ARPANSA DB)	N (TR-164)	N (ORSAA/ARPANSA DB)
<b>Genotoxic</b>	<b>16</b>	<b>34</b> (+9 Synergistic Effect with mutagen and +1 Effect DNA Repair)	<b>32</b>	<b>39</b> (+2 Effect Positive)
<b>Proliferation/Apoptosis</b>	<b>25</b>	Apoptosis 26 Proliferation 33 (+1 Uncertain) Combined <b>59</b> (+1 Uncertain)	<b>30</b>	Apoptosis 22 (+1 Effect Positive) Proliferation 35 Combined <b>57</b> (+1 Effect Positive)
<b>Gene Expression</b>	<b>4</b>	<b>61</b> (+6 Uncertain Effect)	<b>10</b>	<b>14</b>
<b>Stress Response/Heat Shock Proteins (HSP)</b>	<b>4</b>	<b>28</b> (3 at thermal levels) (+1 Uncertain Effect)	<b>17</b>	<b>19</b>
<b>Intracellular Signalling</b>	<b>1</b>	<b>10</b> (+1 Uncertain Effect - synergistic with potassium-induced depolarization)	<b>3</b>	<b>2</b>
<b>Membrane Effects</b>	<b>17</b>	<b>27</b>	<b>4</b>	<b>4</b> (+1 Effect Positive)
<b>Direct Effects On Proteins</b>	<b>15</b>	<b>77</b> (+5 Uncertain Effects)	<b>1</b>	<b>3</b>
<b>Oxidative Stress</b>	<b>N/S</b>	<b>17</b>	<b>N/S</b>	<b>11</b>
<b>Totals</b>	<b>82</b>	<b>313</b>	<b>97</b>	<b>149</b>

**TR-164**  
Effect 46% vs No Effect 54%

**ORSAA**  
Effect 68% vs No Effect 32%

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Topic	Y (TR-164)	Y (ARPANSA/ORSAA DB)	N (TR-164)	N (ARPANSA/ORSAA DB)
Cell Physiology, Injury, Apoptosis	21	72 (+1 Uncertain Effect)	17	16 (+2 Positive Protective Effect)
Neurotransmitters	1	10	1	1
Brain Electrical Activity	3	13	2	2
Blood Brain Barrier and Micro Circulation	4	10	8	15
Endocrine System	3	27	5	7
Autonomic Function	0	2 (+1 Uncertain Effect)	2	0
Spatial Memory	7	15	4	10
General Learning	4	13 (+1 Effect - Thermal Levels)	5	9
Auditory Function	4	4 (+1 Uncertain Effect)	7	8
Genotoxicity and Mutagenesis	8	34	10	20 (+1 Protective Effect/ γ-Radiation)
Immune System and Haematological Effects	5	37 (+2 Uncertain Effect) (+13 Positive Effects)	3	16
Testicular Function	8	25 (+1 Uncertain Effect)	5	4 (+1 Positive Effect)
Pregnancy and Foetal development	9	17 (+2 Uncertain Effect)	10	23
Oxidative Stress	Not Stated	124 (+2 Uncertain Effect)	Not Stated	10
Totals	77	403	79	141

TR-164  
Effect 49% vs No Effect 51%

ORSAA  
Effect 74% vs No Effect 26%