

12/23/2011 rev1

Certificate of Analysis

Customer: Life Shotz
Sample Identification:

Batch #: B-11801

Date Received: 11/15/2011

Anti-Ultra Violet Light Irradiation

This assay measures the cellular protection against UVA/UVB induced free radical release. Specifically, the assay measures level of free and oxidized forms of DCH, a fluorescent chemical probe, in the presence of UVA/UVB irradiation in the presence or absence of testing samples, as reflection how testing samples can affect the UVA/UVB induced free radical release.

Results:

Description	BL ID	Result	Units
A, Liquid	11-1894	Not detected	μmol QE/gram
B, Liquid	11-1895	Not detected	μmol QE/gram
C, Liquid	11-1896	Not detected	μmol QE/gram
D, Liquid	11-1897	Not detected	μmol QE/gram
E, Powder	11-1898	Not detected	μmol QE/gram
F, Powder	11-1899	45.6	μmol QE/gram

The Anti Ultraviolet result is expressed as micromole quercetin equivalency (μmol QE).

Discussion:

Sample-F showed protection against UV light induced free radical release. Such effects were not observed with other testing samples.

Signed for and on behalf of Brunswick Laboratories



Authorized Signature
Boxin Ou, Ph.D.

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Cellular Antioxidant Activity (CAA)

This assay measures the scavenging capacity assay against AAPH induced free radical release. Specifically, the assay measures level of free and oxidized forms of DCH, a fluorescent chemical probe, in the presence of AAPH, a known free radical inducer; in the presence or absence of testing samples as reflection of how testing samples can affect the degree of DCH oxidation.

Results:

Description	BL ID	Result	Units
A, Liquid	11-1894	3.20	µmol QE/gram
B, Liquid	11-1895	1.76	µmol QE/gram
C, Liquid	11-1896	6.36	µmol QE/gram
D, Liquid	11-1897	2.58	µmol QE/gram
E, Powder	11-1898	2.52	µmol QE/gram
F, Powder	11-1899	70.24	µmol QE/gram

The Anti-inflammatory result is expressed as micromole quercetin equivalency (µmol QE).

Conclusion:

Sample-F showed highest protection against AAPH induced free radical release.

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12/23/2011 rev2

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Sample Identification:

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Date Received: 11/15/2011

Antioxidant Response Element (ARE)/ Nrf2

Nuclear factor (erythroid-derived 2)-like 2, or called induces the expression of various genes including those that encode for several antioxidant enzymes. A major mechanism in the cellular defense against oxidative stress is activation of the Nrf2-antioxidant response element signaling pathway, which controls the expression of genes whose protein products are involved in the detoxification and elimination of reactive oxidants and agents through conjugative reactions and by enhancing cellular antioxidant capacity. In this assay, human 293 T cells will be cultured in DMEM complete media, seeded in 24-well plates, cultured in the presence or absence of testing compounds. The levels of Nrf2 proteins will be measured by ELISA assay using reagents purchased from Santa Cruz (Santa Cruz, CA).

Results:

Description	BL ID	Result	Units
A, Liquid	11-1894	Not detected	pg/mL
B, Liquid	11-1895	Not detected	pg/mL
C, Liquid	11-1896	Not detected	pg/mL
D, Liquid	11-1897	Not detected	pg/mL
E, Powder	11-1898	Not detected	pg/mL
F, Powder	11-1899	150.0	pg/mL

The Antioxidant response element result is expressed pictogram per milliliter (pg/mL).

Conclusion:

Sample-F showed highest up-regulation of Nrf2 expression.

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Anti-Inflammation: NF-κB

This assay measures inhibitory effect in TNF- induced NF-κB activation. NF-κB family consists of several nuclear proteins, is involved in cellular responses to many stimuli such as stress, cytokines, free radicals, ultraviolet irradiation, oxidized LDL, and bacterial or viral antigens, and plays a key role in regulating the immune response to infection. Incorrect regulation of NF-κB has been linked to cancer, inflammatory and autoimmune diseases, septic shock, viral infection, and improper immune development. Suppression of NF-κB limits the proliferation of cancer cells and reduces the level of inflammation; hence, methods of inhibition. In this assay, human liver cells will be cultured in the presence of testing compounds for specific length of time, then TNF- induced NF-κB activities will be measured using ELISA kits purchased from Active Motif Inc. (Carlsbad, CA).

Results:

Description	BL ID	Result	Units
A, Liquid	11-1894	8.9	μmol QE/gram
B, Liquid	11-1895	7.7	μmol QE/gram
C, Liquid	11-1896	16.5	μmol QE/gram
D, Liquid	11-1897	7.0	μmol QE/gram
E, Powder	11-1898	9.7	μmol QE/gram
F, Powder	11-1899	172.9	μmol QE/gram

The Anti-inflammatory result is expressed as micromole quercetin equivalency (μmol QE).

Conclusion:

Sample-F showed highest protection against TNFα induced NF-κB expression.

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Anti-aging- (SIRT1):

SIRT1 codes for a deactylase that plays particularly important roles in an organism's response to stress and toxicity, and hypothesized to play important roles in longevity, age related diseases, obesity, cardiovascular, neurological disease, and cancer. The expression of SIRT1 can be influenced by many environmental and dietary factors. Studies show resveratrol can augment SIRT1 expression while Vitamin B₃, nicotinamide, can down regulate SIRT1 expression. In this assay, human 293 T cells will be cultured in DMEM complete media and seeded in 96-well plates; AAPH, a free radical that induces cell damage, will be added to the wells. Cells will be cultured in the presence or absence of testing samples for 4 hours. The levels of SIRT1 will be measured by an ELISA kit purchased from Active Motif Inc. (Carlsbad, CA).

Results:

Description	BL ID	SIRT1 level decrease (%)
A, Liquid	11-1894	Not detected
B, Liquid	11-1895	Not detected
C, Liquid	11-1896	Not detected
D, Liquid	11-1897	Not detected
E, Powder	11-1898	Not detected
F, Powder	11-1899	76.6

The Anti aging result is expressed as SIRT1 level change (%).

Conclusion:

Sample-F showed up-regulation of SIRT1 expression. Such effects were not observed with other testing samples.

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