

# Immunomodulatory Effect of Biofield Energy Healing (The Trivedi Effect®) Based Herbomineral Formulation

Trivedi MK<sup>1</sup>, Branton A<sup>1</sup>, Trivedi D<sup>1</sup>, Nayak G<sup>1</sup>, Mondal SC<sup>2</sup>, and Jana S\*<sup>2</sup>

<sup>1</sup>Trivedi Global, Inc, Henderson, USA

<sup>2</sup>Trivedi Science Research Laboratory Pvt Ltd, India

\*Corresponding author: Dr. Snehasis Jana, Trivedi Science Research Laboratory Pvt. Ltd, Thane (W), India; Email: publication@trivedisrl.com

Received Date: March 23, 2019; Published Date: April 08, 2019

## Abstract

Complementary medicines are accepting world-wide and are used extensively due to its safe and non-toxic nature. The aim of the study was to evaluate the immunomodulatory potential of the Biofield Energy Treated (known as The Trivedi Effect®) novel proprietary formulation and Biofield Energy Treatment *per se* on male rats. The formulation was divided into two parts, one part was defined as the untreated test formulation, while the other part was treated with the Biofield Energy by Mahendra Kumar Trivedi and denoted as the Biofield Energy Treated test formulation. Experimental groups (G) included G1 with normal control, G2 with disease control, G3 with the treatment of levamisole (positive control), G4 with untreated test formulation, G5 received Biofield Treated test formulation, G6 consisted of Biofield Energy Treatment *per se* to animals (-15 days), G7 received Biofield Treated test formulation from day -15, G8 has received Biofield Energy Treatment *per se* to animals along with Biofield Treated test formulation from day -15, and G9 received Biofield Energy Treatment *per se* to animals with the untreated test formulation.

The results showed that primary antibody titer value was significantly increased by 60%, 63.33%, 33.33%, and 20% in the G6, G7, G8, and G9 groups, respectively compared with the G2. However, secondary antibody titer values were significantly increased by 50%, 37.5%, 37.5%, and 12.5% in the G6, G7, G8, and G9 groups, respectively compared with the G2. Delayed type hypersensitivity (DTH) reaction showed significant increase level of rat paw volume by 86.36%, 30.68%, and 14.77% in the G5, G6, and G7 groups, respectively compared with the G2. Additionally, the platelet count was significantly increased by 11.96% in G6 compared to G2. The level of uric acid was significantly reduced by 64.29% in G7 compared to G2. Further, levels of calcium and phosphorous were significantly increased by 19.16% and 14.92%, respectively in the G9 compared to the G2.

Moreover, the level of magnesium was significantly increased by 13.11% and 10.66% in G4 and G9 groups, respectively compared to G2. Overall, data suggests that the Biofield Treatment *per se* (The Trivedi Effect®) and Biofield Treated test formulation have shown significant immunomodulatory action as compared with the untreated product and unblessed rats. Therefore, the Biofield Treatment could be utilised against various immuno-related disorders such as neutropenia, asplenia, trauma, sickle cell anemia, multiple myeloma, chronic lymphoid leukemia, stress, aging, etc.

**Keywords:** Immunomodulation, Biofield Energy Healing, Humoral immune response, Delayed type hypersensitivity, Hematology, Biochemistry

**Abbreviations:** DTH: Delayed Type Hypersensitivity; CAM: Complementary and Alternative Medicine; RBC: Red Blood Count; DTH: Delayed Type Of Hypersensitivity; PBS: Phosphate-Buffered Saline; MCH: Mean Corpuscular Hemoglobin; MCV: Corpuscular Volume; PCV: Packed Cell Volume; MCHC: Mean Corpuscular Hemoglobin Concentration; BUN: Blood Urea Nitrogen; UA: Creatinine, Uric Acid; SEM: Standard Error of Mean; HA: Haemagglutination; MCV: Mean Corpuscle Volume.

## Introduction

Inflammation plays a central mechanism and vital role in most of the existing chronic illnesses, such as neurodegenerative, cardiovascular, pulmonary, metabolic, autoimmune and neoplastic diseases. However, inflammation is a kind of localized protective response which is elicited by any injury or tissue destruction that helps to destroy, dilute or sequester the source of injurious agent and the injured tissue. Inflammation is the complex reaction and is closely related with the repair process through native parenchymal cells regeneration, by filling the defect with the fibrous tissue. Immunomodulators are the agents which regulate the immune system in various dysfunctions, while most of them are based on various medicinal plants and minerals [1]. These minerals based formulations are believed to improve the immune system by sustaining the body self-defense mechanism and re-establish the body's equilibrium. Literature data suggest that most of the immunomodulatory formulations are based on medicinal plants, minerals, and organic matter [2]. Herbal based products have wide activity due to its lavish chemical and structural diversity with broad spectrum activities. Besides, minerals and plant based product have reported with limited and low toxicity that make them ideal moieties for the different types of drug formulations [3]. Herbal based medicines, trace minerals like selenium, zinc, copper, magnesium, *etc.* have been reported for their immunomodulatory activity [4]. In this study, a novel proprietary formulation was designed which contained nanocurcumin, zinc chloride, magnesium (II) gluconate hydrate, sodium selenate, ascorbic acid (Vit-C), cholecalciferol (Vit-D3), iron (II) sulfate, and copper chloride. It might be expected about coordinated interactions of all the constituents with the immune cells that can evoke an appropriate immune response. All the individual constituents of this formulation has been shown different biological activities such as antioxidant, anti-inflammatory, anti-viral, and immune modulating [5]. Besides, curcumin has also been reported with its inhibitory potential to the cellular proliferation and cytokine production by inhibiting the NF-kappaB target genes. It plays important role in treatment of inflammation and metabolic diseases [6].

Biofield Energy is considered as a complementary and alternative medicine (CAM) has been reported with an improved immune response with several advantages in various forms [7]. Researchers reported on the basis of several clinical trials, the importance of Biofield Energy Healing on immune system such as in case of improved immune function in cervical cancer patients after therapeutic touch [8] and massage therapy [9]. However, this energy can exists in various forms that can be harnessed and transmit it into living and non-living things by the process of Biofield Energy Treatment. The Trivedi Effect® had been expansively reported with significant results in different scientific fields like cancer research [10, 11], microbiology [12-15], genetics [16-17], pharmaceutical science [18-21], agricultural science [22-25], and materials science [26-29]. Thus, the present study has been designed to evaluate the impact of the Biofield Treated formulation and Biofield Energy Treatment *per se* immunomodulatory effect such as the primary and secondary humoral immune response, delayed type hypersensitivity reaction, hematology and biochemical parameters.

## Materials and Methods

### Chemicals and reagents

Cyclophosphamide, carboxymethylcellulose sodium were purchased from Sigma Chemical Co. (St. Louis, MO). Nanocurcumin (purity 40%) was procured from Sanat Products Ltd., India. Zinc chloride and magnesium (II) gluconate hydrate procured from TCI, Japan. Sodium selenate procured from Alfa Aesar, USA. Levamisole hydrochloride, ascorbic acid, cholecalciferol and iron (II) sulfate were procured from Sigma, USA. Copper Chloride was purchased from VETEC (Sigma-Aldrich), USA. Rest of chemicals were used in the study of analytical grade available from India.

### Laboratory animals

A total number of 72 healthy Wistar male rats (200-275 grams; 8 animals in each groups) were used in this experiment. Animals were maintained under standard experimental conditions, with room temperature ( $22 \pm 3^\circ\text{C}$ ) and relative humidity (30% to 70%). The animals were acclimatized prior to the experiments, and all were accessed once daily for clinical signs, behaviors, morbidity and mortality. The animal care was complied with the Regulations of CPCSEA. The test facility was registered for experiment of animals. The animals were procured using Animal Ethics Committee approved protocol) and the husbandry conditions maintained as per CPCSEA recommendations.

### Biofield energy treatment strategy

The test item was divided into two parts. One part was considered as untreated test formulation, where no Biofield Energy Treatment was provided, while the untreated group was treated with “sham” healer for comparison purposes. The “sham” healer did not have any knowledge about the Biofield Energy Treatment. Besides, the second part was received Biofield Energy Treatment (The Trivedi Effect®) by renowned healer Mahendra Kumar Trivedi remotely under standard laboratory conditions for ~3 minutes through his unique energy transmission process. Besides, three group of animals were also received Biofield Energy Treatment under laboratory conditions for ~3 minutes. After Biofield Energy Treatment, both the Biofield Treated and untreated samples were returned in the similar sealed condition and used as per the study plan.

### Antigen (Sheep RBC)

The blood was removed from the jugular vein of a healthy sheep aseptically and transferred in a heparinized tube. Erythrocytes were isolated from plasma by centrifugation (800 g, 10°C, 10 minutes), washed two-times with the normal saline (NS) and then further diluted in NS and the samples were analyzed using Hematology analyzer (Abbott Model-CD-3700). Depending on the number of erythrocytes present in the sample was further diluted (using NS) prior injecting to the rat [30].

### Treatment regimen

The animals were grouped (G) after one week of acclimatization according to their body weight. Normal control (G1) group was given 0.5% oral suspension of carboxymethylcellulose-sodium. All the animals except G1 group were received cyclophosphamide (at 25 mg/kg; *i.p.*) on day 9 and 16. G1, G2 and G6 were treated with 0.5% w/v CMC-Na in distilled water. G3 animals received reference item, levamisole hydrochloride at 50 mg/kg from day 1 to 22. G4 and G5 groups received the untreated and Biofield Energy Treated test formulation (at 624.115 mg/kg, *p.o.*). Moreover, G6 and G8 groups included Biofield Energy Treatment *per se* to the animals (-15 days). After 15 day pre-study period (G7 and G8 animals received test formulation from day -15), while G9 group animals were treated with Biofield Energy Treatment *per se* along with untreated test formulation for 22 days. On day 7, all the animals in except G1 were challenged with sheep red blood cells (sRBC) at 0.5 X 10<sup>9</sup>/100 gm; *i.p.* to sensitize the immunological response. On day 14<sup>th</sup>, blood was collected from retro-orbital plexus and serum was separated for hemagglutination test for humoral immune response. On day 21<sup>st</sup>, the animals were challenged with sRBC (0.5 X 10<sup>9</sup> cells/50µL/rat) in sub-

planter region and after 24 hours, paw volume was measured to evaluate cellular immune response. At the end of the experiment, blood samples were collected and subjected to hematology and biochemical parameters.

### Determination of humoral immune response

About 25 µL of serum was serially diluted with 25 µL of NS. Then, the sRBC was added to each dilutions and incubated for one hour at 37°C. The rank of minimum dilution that exhibited hemagglutination was considered as an antibody titer. The level of antibody titer on day 14 was considered as the “primary humoral immune response” and the day 21 for “secondary humoral immune response” [31].

### Measurement of paw volume (Delayed Type Hypersensitivity)

The footpad reaction method was used for the evaluation of cellular immune response. The edema was induced in the right paw of rats by injecting sRBC (0.025 X 10<sup>9</sup> cells) in the sub-plantar region. An increase in the paw volume after 24 hours, *i.e.*, on day 21 was measured using digital plethysmometer (PanLab, Spain). The increase of mean percent of paw volume was considered as delayed type of hypersensitivity (DTH) and as an index of cell-mediated immunity. The volume of the left hind paw, injected similarly with phosphate-buffered saline (PBS) and served as negative control.

### Hematological and biochemical parameters

The animals were fasted for overnight and blood was collected from retro-orbital plexus under anaesthesia using isoflurane. An aliquot of blood sample from each animal was directly subjected for the estimation of hematological parameters *viz.* red blood count (RBC), hemoglobin (Hb), platelets, mean corpuscular volume (MCV), packed cell volume (PCV), mean corpuscular hemoglobin (MCH), and mean corpuscular hemoglobin concentration (MCHC) using hematology analyzer (Celltak Alpha, Nihon Khoden, Japan) [32]. An aliquot of blood sample was used for the isolation of serum and determined for biochemical parameters *viz.* blood urea nitrogen (BUN), creatinine, uric acid (UA), calcium, magnesium, phosphorus, sodium, potassium, and chloride ions using biochemistry analyzer (MISPA NANO, AGAPEE, India) [32].

### Statistical analysis

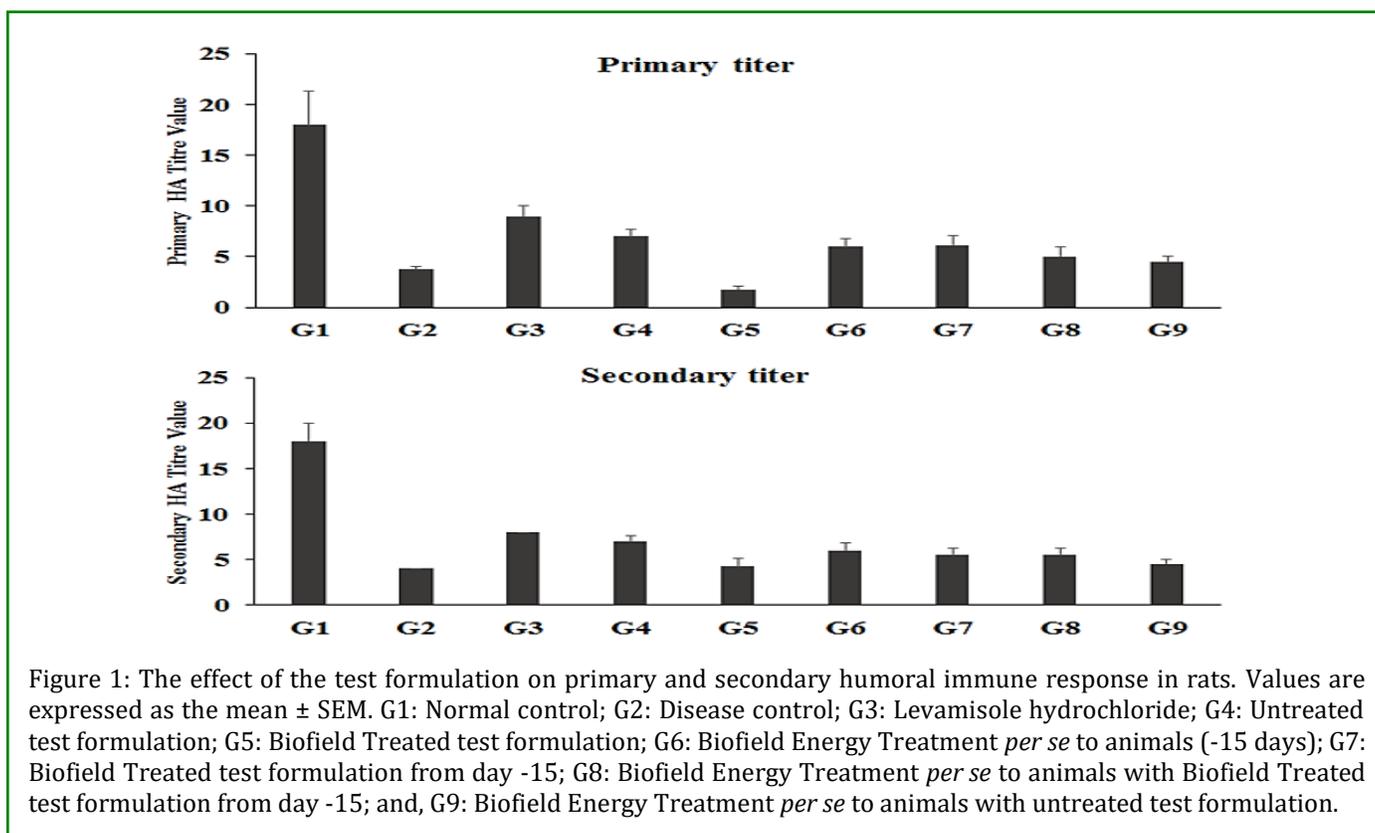
Values were expressed as mean ± standard error of mean (SEM) and were subjected to Student's *t*-test. Statistical significance was considered at *p* ≤ 0.05.

## Results

### Evaluation of humoral immune response

The results of primary and secondary humoral immune response were presented in terms of haemagglutination (HA) titer values after test formulation administration, those are summarized in Figure 1. The primary titer value in the disease control group (G2) was significantly decreased by 79.17% ( $p < 0.001$ ) as compared with the normal control (G1) group ( $18.0 \pm 3.29$ ). However, the primary HA titer was increased significantly after administration of the Biofield Energy Treated test formulation in different groups. The animals in the

Biofield Treated groups showed a significantly improved primary HA titer values by 60%, 63.34%, 33.34%, and 20% in the G6, G7, G8, and G9, respectively as compared with the disease control group (G2). The value of primary titer in the levamisole group (positive control, G3) showed  $9.0 \pm 1.0$ , while it was  $7.0 \pm 0.65$  in the G4 group *i.e.*, in the untreated test formulation group. Similarly, the increased titer values in the G6, G7, G8, and G9 were  $6.0 \pm 0.75$ ,  $6.12 \pm 0.97$ ,  $5.0 \pm 0.92$ , and  $4.5 \pm 0.5$ , respectively. Besides, the Biofield Treated test formulation showed an improved secondary antibody titer level by 6.25%, 50%, 37.5%, 37.5%, and 12.5% in the G5, G6, G7, G8, and G9, groups respectively as compared with the G2 group.



### Measurement of delayed type hypersensitivity (DTH) reaction (Paw Volume)

Effect of the Biofield Treated test formulation with respect to DTH reaction in male rats was measured and are presented in Figure 2. Results suggest that the mean paw edema volume in the normal control (G1) and disease control (G2) group was  $0.25 \pm 0.03$  mL and  $0.11 \pm$

$0.02$  mL, respectively. The levamisole group (G3) showed an increased paw volume by  $0.24 \pm 0.02$  mL *i.e.* 120.5% as compared with the G2 group. However, significant improved paw volume was found in the experimental treated groups by 86.36%, 30.68%, 14.77%, 4.54%, and 4.55% in the G5, G6, G7, G8, and G9 groups, respectively as compared with the disease control (G2) group.

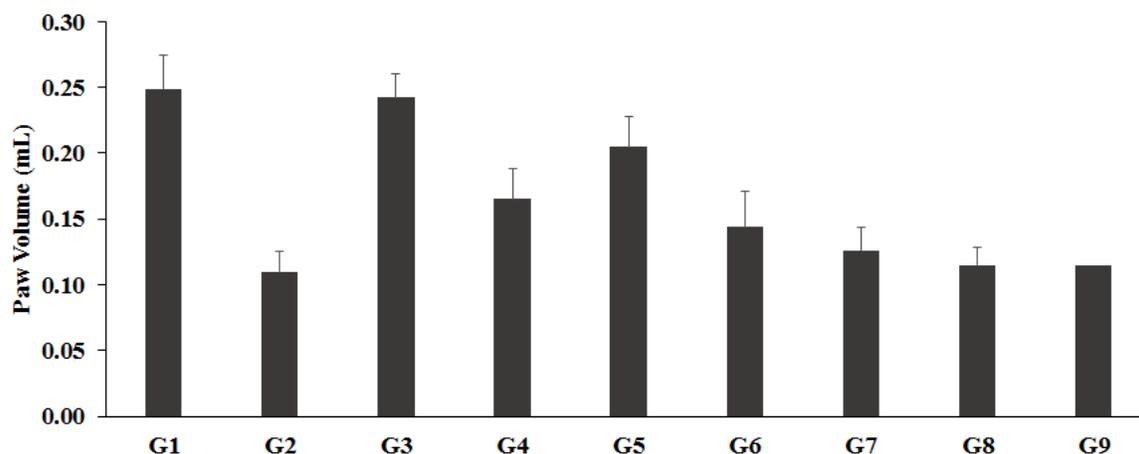


Figure 2: Effect of the test formulation on rat paw volume (delayed-type hypersensitivity). G1: Normal control; G2: Disease control; G3: Levamisole hydrochloride; G4: Untreated test formulation; G5: Biofield Treated test formulation; G6: Biofield Energy Treatment *per se* to animals (-15 days); G7: Biofield Energy Treated test formulation from day -15; G8: Biofield Energy Treatment *per se* to animals with Biofield Treated test formulation from day -15; and, G9: Biofield Energy Treatment *per se* to animals with the untreated test formulation.

### Evaluation of hematological parameter

The effect of the Biofield Treated test formulation on various selected hematological parameters are shown in Table 1. Results showed that the platelet count was significantly increased by 9.22% and 11.96% in the untreated test formulation group (G5) and Biofield Treated group alone at day -15 (G6), respectively than G2. Moreover, hemoglobin level was significantly increased by 3.32% and 5.63% in the G6 and Biofield Energy Treatment *per se* to animals with the untreated test

formulation (G9) groups, respectively as compared to the G2 group. Additionally, the level of RBC was increased by 3.27%, 5.79%, 5.41%, and 5.28% in the Biofield Treated test formulation (G4), G6, Biofield Energy Treated test formulation at day -15 (G7), and G9 groups, respectively as compared to the G2 group. Further, the level of mean corpuscle volume (MCV) was increased by 3.77% in the Biofield Energy Treatment *per se* to animals with Biofield Treated test formulation from day -15 (G8) group as compared to the G2 group.

Group	RBC (10 <sup>6</sup> /5L)	Hb (gm/dL)	PCV (%)	MCV (fl)	MCH (pg)	MCHC (%)	Platelet Count (thou/mm <sup>3</sup> )	RDW-CV
G1	8.57 ± 0.18	15.59 ± 0.18	45.69 ± 0.58	53.39 ± 0.80	18.24 ± 0.43	34.15 ± 0.43	1023.75 ± 34.56	0.11 ± 0.001
G2	7.95 ± 0.17	14.75 ± 0.20	43.01 ± 0.88	54.15 ± 0.50	18.61 ± 0.29	34.35 ± 0.35	1111.13 ± 64.34	0.12 ± 0.002
G3	8.00 ± 0.10	14.74 ± 0.26	43.14 ± 0.75	53.91 ± 0.53	18.43 ± 0.17	34.16 ± 0.12	964.50 ± 70.66	0.12 ± 0.001
G4	8.21 ± 0.12	15.03 ± 0.19	44.13 ± 0.60	53.80 ± 0.62	18.34 ± 0.23	34.08 ± 0.21	1117.38 ± 54.60	0.12 ± 0.001
G5	7.89 ± 0.12	14.74 ± 0.23	43.59 ± 0.84	55.28 ± 0.55	18.70 ± 0.21	33.83 ± 0.23	1213.63 ± 78.49	0.13 ± 0.002
G6	8.41 ± 0.16	15.48 ± 0.18	44.88 ± 0.57	53.43 ± 0.57	18.44 ± 0.29	34.49 ± 0.30	1244.00 ± 36.18	0.12 ± 0.001
G7	8.38 ± 0.21	15.24 ± 0.22	45.28 ± 0.91	54.11 ± 0.38	18.21 ± 0.22	33.70 ± 0.33	1093.63 ± 59.68	0.12 ± 0.001
G8	7.77 ± 0.28	14.80 ± 0.35	43.51 ± 1.05	56.19 ± 0.99	19.11 ± 0.34	34.00 ± 0.17	1001.00 ± 122.00	0.12 ± 0.002
G9	8.37 ± 0.10	15.58 ± 0.19	45.79 ± 0.65	54.69 ± 0.30	18.60 ± 0.14	34.03 ± 0.18	1058.63 ± 55.89	0.13 ± 0.003

Table 1: Evaluation of hematology parameters of Biofield Energy Treated test formulation in male Sprague Dawley rats.

Data are expressed as the mean ± SEM. G1: Normal control; G2: Disease control; G3: Positive control; G4: Untreated test formulation; G5: Biofield Treated test formulation; G6: Biofield Energy Treatment alone at day -15 (without test formulation); G7: Biofield Energy Treated

test formulation at day -15; G8: Biofield Energy Treatment *per se* to animals with Biofield Treated test formulation from day -15; and, G9: Biofield Energy Treatment *per se* to animals with the untreated test formulation.

### Evaluation of biochemical parameter

Alteration of various biochemical parameters after treatment with the test formulation is shown in Table 2. The serum was used as matrix for the estimation of biochemical parameters viz. magnesium (Mg), blood urea nitrogen (BUN), creatinine (CR), uric acid (UA), calcium (Ca), phosphorus (P), potassium (K<sup>+</sup>), sodium (Na<sup>+</sup>), and chloride (Cl<sup>-</sup>) ion. The level of uric acid (UA) was significantly reduced by 64.29% in the Biofield Treated test formulation at day -15 (G7) group as compared to the

disease control (G2) group. The levels of calcium and phosphorus were increased by 19.16% and 14.92%, respectively in the Biofield Energy Treatment *per se* to animals with the untreated test formulation (G9) group compared to the G2 group. The level of magnesium was significantly increased by 13.11%, 6.56%, 9.84%, and 10.66% in the Biofield Energy Treated test formulation (G4), G7, Biofield Energy Treatment *per se* to animals with Biofield Treated test formulation from day -15 (G8), and G9 groups, respectively compared to the G2 group.

Group	Magnesium (mg/dL)	Blood Urea (mg/dL)	Creatinine (mg/dL)	Uric Acid (mg/dL)	Calcium (mg/dL)	Phosphorus (mg/dL)	Na <sup>+</sup> (Meq/L)	K <sup>+</sup> (mEq/L)	Cl <sup>-</sup> (mEq/L)
G1	2.68 ± 0.10	50.28 ± 2.41	0.40 ± 0.04	1.36 ± 0.33	9.44 ± 0.06	9.03 ± 0.49	144.01 ± 0.85	4.66 ± 0.07	98.75 ± 0.73
G2	2.44 ± 0.09	49.43 ± 3.37	0.33 ± 0.02	1.15 ± 0.32	9.34 ± 0.08	9.05 ± 0.21	145.13 ± 0.65	4.55 ± 0.09	100.75 ± 1.62
G3	2.71 ± 0.11	50.20 ± 2.76	0.30 ± 0.02	1.01 ± 0.19	9.40 ± 0.13	8.69 ± 0.34	145.75 ± 0.73	4.61 ± 0.11	101.75 ± 1.59
G4	2.76 ± 0.11	48.08 ± 3.91	0.33 ± 0.02	1.40 ± 0.24	9.45 ± 0.06	8.49 ± 0.23	144.84 ± 0.80	4.75 ± 0.08	99.10 ± 1.09
G5	2.77 ± 0.13	44.00 ± 2.26	0.35 ± 0.04	1.36 ± 0.10	9.91 ± 0.06	9.80 ± 0.42	144.95 ± 0.38	4.64 ± 0.05	102.00 ± 1.89
G6	2.36 ± 0.07	51.56 ± 2.06	0.33 ± 0.02	1.19 ± 0.14	9.68 ± 0.09	9.43 ± 0.24	145.65 ± 0.84	4.61 ± 0.04	99.00 ± 0.38
G7	2.60 ± 0.14	47.50 ± 3.68	0.30 ± 0.00	0.70 ± 0.17	9.44 ± 0.12	9.19 ± 0.51	144.93 ± 0.46	4.69 ± 0.10	101.98 ± 1.47
G8	2.68 ± 0.09	50.91 ± 2.66	0.30 ± 0.00	1.24 ± 0.16	9.78 ± 0.14	9.86 ± 0.25	146.43 ± 0.55	4.63 ± 0.06	103.13 ± 1.27
G9	2.70 ± 0.12	51.91 ± 2.17	0.33 ± 0.02	1.63 ± 0.47	11.13 ± 1.07	10.40 ± 0.44	144.44 ± 0.75	4.74 ± 0.08	103.38 ± 1.49

Table 2: Assessment of some essential biochemical constituents of Biofield Treated herbomineral test formulation in male Sprague Dawley rats.

Data are expressed as the mean ± SEM. G1: Normal control; G2: Disease control; G3: Positive control; G4: Biofield Treated test formulation; G5: Untreated test formulation; G6: Biofield Treatment alone at day -15 (without test formulation); G7: Biofield Treated test formulation at day -15; G8: Biofield Energy Treatment *per se* to animals with Biofield Treated test formulation from day -15; and, G9: Biofield Energy Treatment *per se* to animals with the untreated test formulation.

### Discussion

The humoral immune response data suggest that the Biofield Energy Treatment at -day15 had shown significant improvement of the antibody titer level as compared with the Biofield Energy Treated product. All the treatment results with respect to the -day 15 showed an improved primary titer values. The findings also suggest that the test formulation exhibited a potent immunomodulatory effect on humoral mediated immunity with improved antibody synthesis under inflammatory stimulus. The increase in antibody titer values in the Biofield Treated test formulation and Biofield Energy Treatment *per se* clearly states the significance of the test formulation in humoral immunity modulation. This might involve the production of specific antibodies (immunoglobulins) by lymphatic or plasma cells after sensitization to specific antigens [33]. It can be

concluded that the Biofield Treated herbomineral formulation may augment the body's immunity and enhance the capacity against various infections like bacterial and viral that might lead to enhance the body's immune response. It also suggests that the Biofield Energy Treatment *per se* to the animals might alter some biological properties which are responsible for significant immunological changes in all the Biofield Energy Treated animals.

DTH, a peripheral expression of cell-mediated immunity which is influenced by antigen-specific T cells and induced by various allergens [34]. These results suggest that the Biofield Treated test formulation has significantly improved DTH in terms of increased paw volume in rat. The increased paw volume might be due to the constituents present in the test formulation. Therefore, it can be concluded that the constituents present in the test formulation are responsible for DTH reaction; however the Biofield Energy Healing (The Trivedi Effect®) Treatment has significantly enhanced the anti-inflammatory and immune response as compared with the untreated test formulation group.

It was indicated that the Biofield Treated test formulation showed more increment of platelets counts than untreated formulation; which might be due to the Biofield Energy Healing Treatment. Overall, it is indicated that the

Biofield Energy Treated test formulation showed better platelets counts as compared to both untreated (G4) as well as Biofield Treatment group *per se*. From literature, it was reported that ashwagandha prevented myelosuppression and increase in platelet count and body weight [35]. Study observed that an increased platelet count was well matched with the literature findings due to the presence of ashwagandha. Rest of the parameters such as PCV, MCH, MCHC, and RDW-CV were altered, however did not show any significant results as compared to the disease control (G2) group. It indicated that the Biofield Energy Treatment was unaffected to these parameters.

Uric acid is considered as a marker of most of inflammatory and immune-related disorders [36]. Here, the Biofield Treated test formulation at day -15 (G7) showed beneficial effect by significantly reducing the concentration of UA than both disease control and untreated product. The results might be due to Biofield Energy Healing to the novel herbomineral product, which could be very helpful in the patients with inflammatory or autoimmune disorders like rheumatic arthritis in near future. Besides, the levels of magnesium, calcium, and phosphorous were improved in the Biofield Treated groups with respect to the disease control group. The excellent outcomes of Biofield Energy Treated formulation might be due to the unique electromagnetic radiations of the Biofield Energy Healers during energy transmission process.

## Conclusion

The experimental results suggest that Biofield Treatment *per se* and the Biofield Energy Treated test formulation have shown significant immunomodulatory action with improved primary antibody titer values by 60%, 63.33%, 33.33%, and 20% in the G6, G7, G8, and G9 groups, respectively as compared with the disease control (G2) group. Moreover, the secondary antibody titer values in the G6, G7, G8, and G9 groups were also increased by 50%, 37.5%, 37.5%, and 12.5%, respectively, compared to the G2 group. Delayed type hypersensitivity data also suggest that there was an increased in rats paw volume by 86.36%, 30.68%, and 14.77% in the G5, G6, and G7 groups, respectively compared to the G2 group. Besides, hematological parameter like platelet counts was increased in the G6 group by 11.96% compared to the G2 group. Biochemical parameters like uric acid level was reduced in the G7 group (by 64.29%), increased the levels of calcium (by 19.16%) and phosphorous (by 14.92%) were increased in the G9 group, compared to the G2 group.

Further, serum magnesium level was significantly increased by 13.11%, 9.84%, and 10.66% in the G4, G8, and G9 groups, respectively compared to the G2 group. Overall, data suggests that the Biofield Energy Treatment (The Trivedi Effect®) *per se* to the animals and Biofield Energy Treated test formulation showed an improved immune response as compared with the untreated test formulation. Therefore the Biofield Treatment can be used to fight against various immuno-related disorders such as neutropenia, asplenia, trauma, sickle cell anemia, multiple myeloma, chronic lymphoid leukemia, stress, aging, etc. Besides, it can also be used for the transplant of various organs (kidney, liver, and heart), autoimmune disorders (Systemic Lupus Erythematosus, Addison Disease, Graves' Disease, Thyroiditis, Multiple Sclerosis, Myasthenia Gravis, Pernicious Anemia, Aplastic Anemia, Rheumatoid Arthritis, Sjogren Syndrome, Alopecia Areata, Vasculitis, Type 1 Diabetes, Fibromyalgia, Crohn's Disease, Vitiligo, Chronic Fatigue Syndrome Scleroderma, Psoriasis), and inflammatory disorders such as Diverticulitis, Ulcerative Colitis, Asthma, Alzheimer's Disease, Atherosclerosis, Irritable Bowel Syndrome, Parkinson's Disease Dermatitis, Hepatitis, and stress etc.

## Acknowledgements

Authors are grateful to Dabur Research Foundation, Trivedi Science, Trivedi Global, Inc., and Trivedi Master Wellness for their support throughout the work.

## References

1. Rishton GM (2008) Natural products as a robust source of new drugs and drug leads: Past successes and present day issues. *Am J Cardiol* 101(10A): 43D-9D.
2. Modak M, Dixit P, Londhe J, Ghaskadbi S, Devasagayam TPA (2007) Indian herbs and herbal drugs used for the treatment of diabetes. *J Clin Biochem Nutr* 40(3): 163-173.
3. Mukhtar M, Arshad M, Ahmad M, Pomerantz RJ, Wigdahl B, et al. (2008) Antiviral potentials of medicinal plants. *Virus Res* 131(2): 111-120.
4. Lukác N, Massányi P (2007) [Effects of trace elements on the immune system]. *Epidemiol Mikrobiol Imunol* 56(1): 3-9.
5. Alambra JR, Alenton RRR, Gulpeo PCR, Mecenas CL, Abigail P, et al. (2012) Immunomodulatory effects of turmeric, *Curcuma longa* (Magnoliophyta, Zingiberaceae) on *Macrobrachium rosenbergii* (Crustacea, Palaemonidae) against *Vibrio alginolyticus*

- (Proteobacteria, Vibrionaceae). Aquaculture, Aquarium, Conservation & Legislation 5(1): 13-17.
6. Yadav VS, Mishra KP, Singh DP, Mehrotra S, Singh VK (2005) Immunomodulatory effects of curcumin. Immunopharmacol Immunotoxicol 27(3): 485-97.
  7. Cooper EL (2007) The immune system and complementary and alternative medicine. Evid Based Complement Alternat Med 4: 5-8.
  8. Lutgendorf SK, Mullen-Houser E, Russell D, Degeest K, Jacobson G, et al. (2010) Preservation of immune function in cervical cancer patients during chemoradiation using a novel integrative approach. Brain Behav Immun 24(8): 1231-1240.
  9. Ironson G, Field T, Scafidi F, Kumar M, Kumar A et al. (1996) Massage therapy is associated with enhancement of the immune system's cytotoxic capacity. Int J Neurosci 84(1-4): 205-217.
  10. Trivedi MK, Patil S, Shettigar H, Mondal SC, Jana S (2015) The potential impact of biofield treatment on human brain tumor cells: A time-lapse video microscopy. J Integr Oncol 4(3): doi:10.4172/2329-6771.1000141.
  11. Trivedi MK, Patil S, Shettigar H, Gangwar M, Jana S (2015) *In vitro* evaluation of biofield treatment on cancer biomarkers involved in endometrial and prostate cancer cell lines. J Cancer Sci Ther 7: 253-257.
  12. Trivedi MK, Patil S, Shettigar H, Mondal SC, Jana S (2015) *In vitro* evaluation of biofield treatment on *Enterobacter cloacae*: Impact on antimicrobial susceptibility and biotype. J Bacteriol Parasitol 6(5): 241.
  13. Trivedi MK, Patil S, Shettigar H, Mondal SC, Jana S (2015) Evaluation of Biofield Modality on Viral Load of Hepatitis B and C Viruses. J Antivir Antiretrovir 7(3): 083-088.
  14. Trivedi MK, Patil S, Shettigar H, Mondal SC, Jana S (2015) An impact of biofield treatment: antimycobacterial susceptibility potential using BACTEC 460/MGIT-TB System. Mycobact Dis 5: 189.
  15. Trivedi MK, Branton A, Trivedi D, Nayak G, Mondal SC, et al. (2015) Antimicrobial sensitivity, biochemical characteristics and biotyping of *Staphylococcus saprophyticus*: An Impact of Biofield Energy Treatment. J Women's Health Care 4: 271.
  16. Trivedi MK, Branton A, Trivedi D, Nayak G, Mondal SC, et al. (2015) Evaluation of antibiogram, Genotype and Phylogenetic Analysis of Biofield Treated *Nocardia ostitidis*. Biol Syst Open Access 4(2): 143.
  17. Trivedi MK, Branton A, Trivedi D, Nayak G, Charan S, et al. (2015) Phenotyping and 16S rDNA analysis after Biofield Treatment on *Citrobacter braakii*: A urinary pathogen. J Clin Med Genom 3: 129.
  18. Trivedi MK, Patil S, Shettigar H, Bairwa K, Jana S, et al. (2015) Spectroscopic Characterization of Chloramphenicol and Tetracycline: An Impact of Biofield. Pharm Anal Acta 6: 395.
  19. Trivedi MK, Patil S, Shettigar H, Bairwa K, Jana S (2015) Spectroscopic characterization of Biofield Treated Metronidazole and Tinidazole. Med chem 5: 340-344.
  20. Trivedi MK, Patil S, Shettigar H, Bairwa K, Jana S (2015) Effect of Biofield Treatment on Spectral Properties of Paracetamol and Piroxicam. Chem Sci J 6: 098.
  21. Trivedi MK, Branton A, Trivedi D, Shettigar H, Bairwa K, et al. (2015) Fourier Transform Infrared and Ultraviolet-Visible Spectroscopic Characterization of Biofield Treated Salicylic acid and Sparfloxacin. Nat Prod Chem Res 3:186.
  22. Trivedi MK, Branton A, Trivedi D, Nayak G, Gangwar M, et al. (2016) Molecular Analysis of Biofield Treated Eggplant and Watermelon Crops. Adv Crop Sci Tech 4(1): 208.
  23. Trivedi MK, Branton A, Trivedi D, Nayak G, Mondal SC, et al. (2015) Morphological characterization, quality, yield and DNA fingerprinting of biofield energy treated alphonso mango (*Mangifera indica L.*). Journal of Food and Nutrition Sciences 3(6): 245-250.
  24. Trivedi MK, Branton A, Trivedi D, Nayak G, Mondal SC, et al. (2015) Evaluation of plant growth, yield and yield attributes of biofield energy treated mustard (*Brassica juncea*) and chick pea (*Cicer arietinum*) seeds. Agriculture, Forestry and Fisheries 4(6): 291-295.
  25. Trivedi MK, Branton A, Trivedi D, Nayak G, Mondal SC, et al. (2015) Evaluation of plant growth regulator, immunity and DNA fingerprinting of biofield energy treated mustard seeds (*Brassica juncea*). Agriculture, Forestry and Fisheries 4(6): 269-274.

26. Trivedi MK, Tallapragada RM, Branton A, Trivedi D, Nayak G, et al. (2015) Characterization of Physical and Structural Properties of Aluminum Carbide Powder: Impact of Biofield Treatment. *J Aeronaut Aerospace Eng* 4(1): 142.
27. Trivedi MK, Nayak G, Patil S, Tallapragada RM, Latiyal O, et al. (2015) Impact of Biofield Treatment on Atomic and Structural Characteristics of Barium Titanate Powder. *Ind Eng Manage* 4: 166.
28. Trivedi MK, Patil S, Nayak G, Jana S, Latiyal O (2015) Influence of Biofield Treatment on Physical, Structural and Spectral Properties of Boron Nitride. *J Material Sci Eng* 4: 181.
29. Trivedi MK, Nayak G, Patil S, Tallapragada RM, Latiyal O, et al. (2015) Characterization of Physical and Structural Properties of Brass Powder after Biofield treatment. *J Powder Metall Min* 4: 134.
30. Ladics GS (2007) Primary immune response to sheep red blood cells (SRBC) as the conventional T-cell dependent antibody response (TDAR) test. *J Immunotoxicol* 4(2): 149-52.
31. Joharapurkar AA, Zambad SP, Wanjari MM, Umathe SN (2003) *In vivo* evaluation of antioxidant activity of alcoholic extract of *Rubia cordifolia* Linn. And its influence on ethanol-induced immunosuppression. *Indian J Pharmacol* 35(4): 232-236.
32. Feldman BF, Zinkl JG, Jain VC (2000) Laboratory techniques for avian hematology," in Schalm's Veterinary Hematology, (5th Edn) Lippincott Williams & Wilkins, Toronto, Canada.
33. Dean JH, Murray MJ (1993) Toxic responses of the immune system. In Casarett and Doull's Toxicology. (4th edn) Amdur MO, Doull J, Klaassen CD. New York: McGraw-Hill; 282-286.
34. Isomura I, Tsujimura K, Morita A (2006) Antigen-specific peripheral tolerance induced by topical application of NF-kappaB decoy oligodeoxynucleotide. *J Invest Dermatol* 126(1): 97-104.
35. Ziauddin M, Phansalkar N, Patki P, Diwanay S, Patwardhan B (1996) Studies on the immunomodulatory effects of Ashwagandha. *J Ethnopharmacol* 50(2): 69-76.
36. Guerrero AL, Martín-Polo J, Laherrán E, Gutiérrez F, Iglesias F, et al. (2008) Variation of serum uric acid levels in multiple sclerosis during relapses and immunomodulatory treatment. *Eur J Neurol* 15(4): 394-397.