

# The Beneficial Effect of MRET-Shield on Blood Morphology in Vitro Following the Exposure to Electromagnetic Radiation of Cell Phone

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## Abstract

*It has been well documented that electromagnetic fields can cause changes to almost all physiological systems in the body, including the cardiovascular, neurological, hormonal and immune systems, as well as the morphology of blood cells. A more growing concern is the effects of radio frequency (RF) radiation from cell phones. The beneficial effect of EMR shielding polymer material (MRET-Shield) on human blood in vitro was observed at Manipal Acunova Central Laboratory Services in Whitefield, Bangalore, Karnataka, India. This experiment provides evidence that the exposure of human blood samples in vitro to EMR of the cell phone affects the ratio of Granulocytes and Lymphocytes in WBC. This effect is related to the stress response and can affect cellular process related to the blood morphology such as growth, division and death of cells in all types of WBC, particularly Granulocytes and Lymphocytes. The installation of MRET-Shield on the cell phone significantly reduced the effect of EMR on the ratio of WBC components and the blood morphology.*

## Introduction

It has been well documented that electromagnetic fields can cause changes to almost all physiological systems in the body,<sup>1</sup> including the cardiovascular,<sup>2,3</sup> neurological,<sup>4</sup> hormonal and immune systems, as well as the morphology of blood cells.<sup>5,6</sup> Many investigators have determined that this radiation is capable of invoking a

stress response in the body. Particularly, Dr. Igor Smirnov (2006) has investigated the effect of electromagnetic radiation (EMR) from the computer monitor on blood samples in vitro.<sup>7</sup> A more growing concern is the effects of radio frequency (RF) radiation from cell phones. The MRET-Shield (the molecular resonance effect technology polymer device) however has uniquely demonstrated the ability to protect the cellular structures of the body against the damaging effect of EMR. Even though the radiation is still entering the body, the subtle low frequency random field of MRET-Shield compensates the harmful effect of high frequency EMR. The MRET-Shield polymer can neutralize negative effect of EMR by changing the quality of the electromagnetic field rather than reducing its power. Any type of device that claims to reduce the power of electromagnetic field would have to distort the transmitted signals and definitely adversely affect the reception of cellular phones.<sup>8</sup> When one considers that most appliances such as cellular and cordless phones, computers, and even vacuum cleaners are usually used right next to the human body, it is reasonable to admit that EMR emitted by such electronic devices will cause biological changes and may damage the cellular structures in the body and cause diseases.<sup>9,10</sup>

The MRET-Shield known as the King-BioPro cell phone chip does not reduce the intensity (power) of electromagnetic field but compensates the negative effect of EMR on biological systems. Every external electromagnetic field generates an excitation in the nano-rings structures of the MRET-Shield polymer compound

<sup>1</sup> Sage C, Carpenter D, Eds. BioInitiative Report: A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Fields (ELF and RF). BioInitiative Working Group. USA. August 31, 2007; Section 1:p.3. <sup>2</sup> Sastre A, Cook M R, Graham C. Nocturnal exposure to intermittent 60 Hz magnetic fields alter human cardiac rhythm. *Bioelectromagnetics*. 1998; 19:p98-106. <sup>3</sup> Savitz D A, Liao D, Sastre A, Kleckner R C. Magnetic field exposure and cardiovascular disease mortality among electric utility workers. *Am J Epidemiol*. 1999; 149:p135-142. <sup>4</sup> Gandhi G A, Singh P. Mobile phone users: Another high health risk group. *J Hum Ecol*. 2005;18(2):p.85-92. <sup>5</sup> Smirnov I V. Polymer Material Providing Compatibility between Technologically Originated EMR and Biological Systems. *Explore Magazine*. 2006;15(4):p.26-32. <sup>6</sup> Lai H. *Neurological Effects of Radiofrequency Electromagnetic Radiation Relating to Wireless Communication Technology*, Paper presentation at the IBC-UK Conference: Mobile Phones-Is There a Health Risk? Brussels, Belgium. September 16-17, 1997. <sup>7</sup> Smirnov I V. Polymer Material Providing Compatibility between Technologically Originated EMR and Biological Systems. *Explore Magazine*. 2006;15(4):p.26-32. <sup>8</sup> Smirnov I V. Polymer Material Providing Compatibility between Technologically Originated EMR and Biological Systems. *Explore Magazine*. 2006;15(4):p.26-32. <sup>9</sup> Fisher H W. *The Invisible Threat: The Risks Associated With EMFs*. Wood Publishing. 2007. <sup>10</sup> Gandhi G A. Genetic damage in mobile phone users: some preliminary findings. *Indian J Hum Genet*. 2005;11:p.99-104.

based on fractal geometry. Due to the phenomenon of piezoelectricity and intensive electrical activity of the fractal nano-rings, this polymer generates biologically active subtle electromagnetic oscillations. These signals have random/noise field characteristic and they are superimposed on the external electromagnetic field affecting biological systems and preventing biological damage in compliance with the magnetic noise field principle.<sup>11</sup> The experiment conducted on human blood samples described below confirmed that the installation of MRET-Shield on the cellular phone could neutralize the negative effect of RF radiation on some types of white blood cells.

**Method**

The beneficial effect of EMR shielding polymer material (MRET-Shield) on human blood *in vitro* was observed at Manipal Acunova Central Laboratory Services in Whitefield, Bangalore, Karnatka, India. Three samples of blood were drawn from each of five subjects. One sample was used as a control. The other blood samples were exposed to the cell phone radiation from a Nokia model 1600 type RH 64 cell phone for fifteen (15) minutes at a distance of 1 cm. The effect of RF (radio frequency) radiation on the human blood samples was observed without a shield (unshielded) and with an MRET-Shield polymer installed on cell phone (shielded). The results were compared with the control group not exposed to electromagnetic radiation (EMR).

**Observations**

The White Blood Cells (WBC) consist of Granulocytes (GRAN), Lymphocytes (LYM) and MID “Minimum Inhibitory Dilution” (a number of precursor white cells). The exposure of the blood samples to external EMR of cell phone led to the changes in the ratio of WBC components, particularly to the changes in Granulocytes and Lymphocytes counts. The installation of MRET-Shield on the cell phone reduced the level of changes of Granulocytes and Lymphocytes counts, which confirms the reduction of stress following the exposure of blood samples to EMR in case of the installation of MRET-Shield on the cell phone.

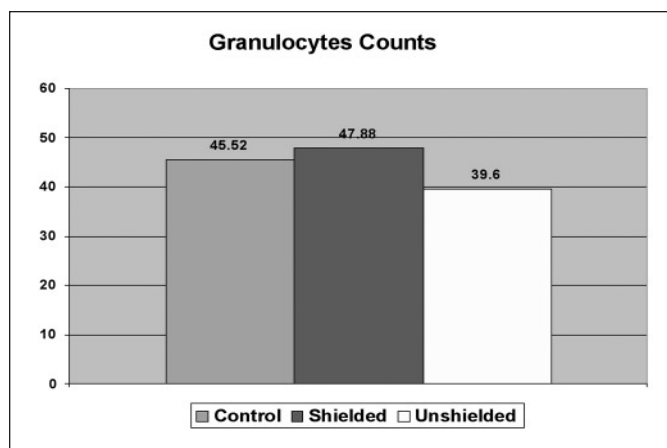


Figure 1

Granulocytes are a critical component of WBC and play an important role in the immune system reactions. Their decrease is not beneficial for the body function. The experiment revealed the decrease of Granulocytes in blood samples exposed to unshielded cell phone radiation. It also showed that the installation of MRET-Shield on cell phone reduced the level of changes in Granulocytes counts and actually turned the changes to the opposite direction: the Granulocytes count increased in this case.

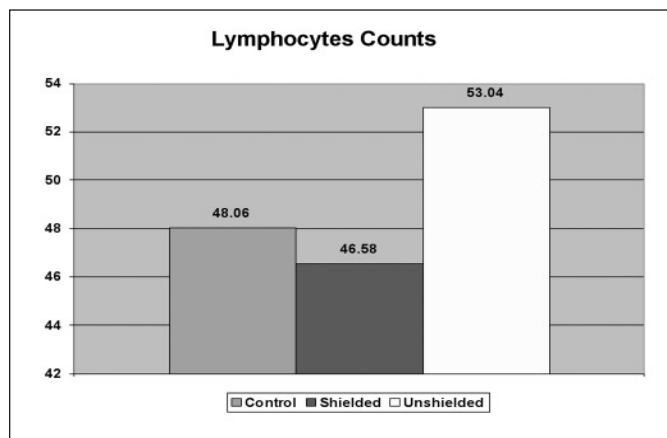


Figure 2

**Table 1**

Parameter	Control	Unshielded	% Differ.	Shielded	% Differ.	Normal Range	
						HIGHEST	LOWEST
Granulocytes	45.52%	39.6%	-13.0	47.88%	5.2	69.8%	19.0%
Lymphocytes	48.06%	53.04%	10.4	46.58%	-3.1	77.8%	27.1%
WBC cell/ $\mu$ l	8080	7940	-1.7	8320	3.0	9300	6500

% Differ. – the relative percentage difference in counts compare to control blood samples.

<sup>11</sup> Zeng Q, Chiang H, Fu Y, Lu D, Xu Z. Electromagnetic noise blocks the gap-junctional intercellular communication suppression induced by 50 Hz magnetic field] Zhonghua Lao Dong Wei Sheng Zhi Ye Bing Za Zhi. 2002;20(4):p.243-5. Chinese.

An increase in the Lymphocytes count is associated with a physiological response to an antigenic or inflammatory stimulus or infection or other kind of external stress. The general consensus is that the increase of Lymphocytes above normal level in case of the absence of any infections increases the risk of leukemia, lymphomas, and other disorders. The experiment revealed the increase of Lymphocytes in blood samples exposed to unshielded cell phone radiation. It also showed that the installation of MRET-Shield on cell phone reduced the level of changes in Lymphocytes count and actually turned the changes in the opposite direction: the Lymphocytes count decreased in this case.

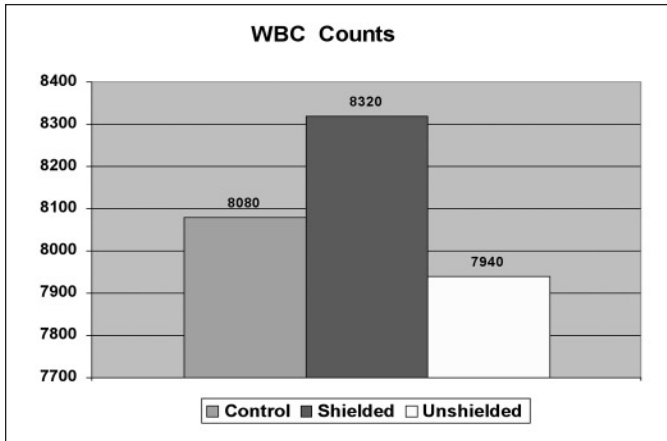


Figure 3

The changes in the total level of WBC were insignificant (less than 3%) in both cases.

## Discussion

**Granulocytes are a critical component of blood and play an important role in the immune system function.** The granulocytes count decreased compare to control samples by 13.0% following the exposure to the cell phone radiation (Figure 1). The installation of the MRET-Shield polymer on the cell phone totally negated the effect of the cell phone radiation on the granulocytes eliminating any suppression of granulocytes by EMR. The observations show that there was an actual increase over control values (by 5.2%) in the shielded samples.

It is evident that the presence of the MRET-Shield device protected the blood samples from the harmful effect (decreased number of circulating granulocytes) resulting from the exposure to EMR, but in fact created a beneficial increase over the control value.

An increase in the lymphocytes count is associated with a physiological response to an antigenic or inflammatory stimulus or infection or other kind of external stress. The general consensus is that the increase of lymphocytes above normal level in case of the absence of any infections increases the risk of leukemia, lymphomas, and other disorders. The lymphocytes count in non-shielded samples increased by 10.4% over the control value. The shielded blood demonstrated the decrease of lymphocytes count by 3.1% compare to control samples. (Figure 2).

## Conclusion

This experiment provides evidence that the exposure of human blood samples *in vitro* to EMR of the cell phone affects the ratio of Granulocytes and Lymphocytes in WBC. This effect is related to the stress response and can affect cellular process related to the blood morphology such as growth, division and death of cells in all types of WBC, particularly Granulocytes and Lymphocytes. The installation of MRET-Shield on the cell phone significantly reduced the effect of EMR on the ratio of WBC components and the blood morphology. The results of this study quite well correlate with the results and conclusion of the previous human blood cells testing *in vitro* conducted at Cedar-Sinai Medical Center in Los Angeles, USA under supervision of Dr. M. Newman and Dr. I. Smirnov (Smirnov 2006).

The results the current study prove that the MRET-Shield polymer not only protects and neutralizes harmful effects of electromagnetic radiation, but also based on these findings, one might conclude that the subtle low frequency oscillations generated by EMR shielding polymer material may produce certain biological effect that helps the human body to achieve the optimum homeostasis. 🌸