

GcMAF and Nagalase Information Sheet

Macrophages are beneficial blood cells that kill foreign invaders as part of a regular and proper immune response to foreign bacteria or viruses in the body. These macrophages are activated by a protein called GcMAF (Gc-Macrophage Activating Factor). However, smart viruses and cancer cells have found a way to interfere with macrophages by producing an enzyme called Nagalase (alpha-N-acetylgalactosaminidase) that disrupts GcMAF. So without GcMAF, macrophages are not signaled to kill and remove the virus or cancer cells.

Nagalase levels can be measured through a blood test, and if your level is high, GcMAF protein can be augmented in your body (in the form of a subcutaneous injection) to jump-start the immune response toward viruses and cancer cells. Research has shown that as the viruses or cancer cells are eventually destroyed, your body is able to return to its own production of GcMAF; and once your Nagalase is under 0.9 nmol/min/mg, you no longer need the weekly injections. You need one injection per week typically for 24 weeks for many disorders, and for more serious conditions, you may need it for a year.

GcMAF has been shown through published research to be a beneficial adjunct for autism, chronic herpes, chronic acne, cirrhosis of the liver, chronic kidney disease, chronic depression, colitis, Chron's, fibromyalgia, hepatitis, HIV, chronic fatigue syndrome, osteoporosis, lupus, allergies and cancers (colon, breast, prostate). The references to research studies listed below make claims and other conclusions about GcMAF such as:

- Inhibits angiogenesis (stops blood supply to cancer tumors)
- Causes cell apoptosis (causes cell suicide of cancer cells)
- Reprograms cancer cells into healthy cells
- Reduces metastatic potential of human cancer cells
- Increases energy production at the mitochondrial level in chronic fatigue syndrome
- Counters the toxic effects of heavy metals like Cadmium
- Increases brain neuronal connectivity by promoting differentiation and formation of dendrites (for autism and chronic fatigue patients)

Although this therapy is considered experimental, in my clinical experience, I find it to be a very safe therapy with little side effects. The most common, but rare side effect can be mild flu like symptoms as the immune system begins to wake up. It is important to ensure your Vitamin D levels are optimal (60-80) and you are not anemic (low in your red blood cells). In addition, you need to eat a low carbohydrate, low sugar, Mediterranean diet. I have been using GcMAF on myself and my patients safely for over a year and with good results. Although I am an advocate of this therapy, I encourage my patients to do independent study of this research to corroborate my point of view or come to their conclusion because the evidence is new, and the cost is not covered by insurance. It is easy to do a PubMed search for "GcMAF" to look at published research. In doing your independent research, consider the quality of the study and possible conflicts of interest that can produce bias in the conclusion. Contact me via the portal if you have any questions.

References (partial list)

Effects of Cadmium and vitamin D binding protein-derived macrophage activating factor (DBP-MAF) in human breast cancer cells. Massimo Gulisano, Tiziana Punzi, Gabriele Morucci, Marco Ruggiero. *It. J. Anat. Embryol.* Vol. 116, No 1 (Supplement) 2011.

GcMAF and Nagalase Information Sheet

Effects of vitamin D-binding protein-derived macrophage-activating factor on human breast cancer cells. ;Pacini S, Punzi T, Morucci G, Gulisano M, Ruggiero M. *Anticancer Res.* 2012 Jan;32(1):45-52.

Therapeutic effects of highly purified de-glycosylated GcMAF in the immunotherapy of patients with chronic diseases.; Lynda Thyer, Emma Ward, Rodney Smith, Jacopo J.V. Branca, Gabriele Morucci, Massimo Gulisano, David Noakes and Stefania Pacini. DOI : 10.3844/ajisp.2013.78.84. *American Journal of Immunology.* Volume 9, Issue 3. Pages 78-84

Initial Observations of elevated Alpha-n-Acetylgalactosaminidase Activity Associated with Autism and Observed Reductions from GC Protein—Macrophage Activating Factor Injections. James Jeffrey Bradstreet, emar Vogelaar and Lynda Thyer.; *Autism Insights* 2012;4 31–38. doi: 10.4137/AUI.S10485.

Gc protein-derived macrophage-activating factor (GcMAF) stimulates cAMP formation in human mononuclear cells and inhibits angiogenesis in chick embryo chorionallantoic membrane assay.; Pacini S, Morucci G, Punzi T, Gulisano M, Ruggiero M.; *Cancer Immunol Immunother.* 2011 Apr;60(4):479-85. doi: 10.1007/s00262-010-0953-7. Epub 2010 Dec 14.

Immunotherapy for Prostate Cancer with Gc Protein-Derived Macrophage-Activating Factor, GcMAF. ; Yamamoto N, Suyama H, Yamamoto N.; *Transl Oncol.* 2008 Jul;1(2):65-72. PMID: 18633461

Immunotherapy of metastatic colorectal cancer with vitamin D-binding protein-derived macrophage-activating factor, GcMAF.; Yamamoto N, Suyama H, Nakazato H, Yamamoto N, Koga Y.; *Cancer Immunol Immunother.* 2008 Jul;57(7):1007-16.; PMID:18058096

Yamamoto, N., Suyama, H., Yamamoto, N. and Ushijima, N. (2008), Immunotherapy of metastatic breast cancer patients with vitamin D-binding protein-derived macrophage activating factor (GcMAF). *Int. J. Cancer*, 122: 461–467. doi: 10.1002/ijc.23107

Yamamoto, N., Ushijima, N. and Koga, Y. (2009), Immunotherapy of HIV-infected patients with Gc protein-derived macrophage activating factor (GcMAF). *J. Med. Virol.*, 81: 16–26. doi: 10.1002/jmv.21376

Shigeru Kanda, Yasushi Mochizuki, Yasuyoshi Miyata, Hiroshi Kanetake, and Nobuto Yamamoto; Effects of Vitamin D₃-Binding Protein-Derived Macrophage Activating Factor (GcMAF) on Angiogenesis *JNCI J Natl Cancer Inst* (2002) 94 (17): 1311-1319 doi:10.1093/jnci/94.17.1311