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**[Fredersdorf S, Milne AW, Hall PA, Lu X. 1996. Characterization of a panel of novel anti-p21Waf1/Cip1 monoclonal antibodies and immunochemical analysis of p21Waf1/Cip1 expression in normal human tissues. Am J Pathol. 148\(3\): 825-35.](#)**

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**[Ivkovic S, Baranek T, Bendzko P, Schulz J, Offer CDSS, Week N. 2005. TMAZ nanoparticles as potential drugs influencing the cellular signal transduction pathways. 2005 NSTI Bio Nano Conference & Trade Show, http://genomes.ucsd.edu/~anovo/docs/Nanotech.2005/v1/0085-88.pdf](http://genomes.ucsd.edu/~anovo/docs/Nanotech.2005/v1/0085-88.pdf)**

“Zeolites have been extensively used in various industrial applications based on their properties to act as catalysts, ion exchangers, adsorbents, and detergent builders. It is also known that silicates and aluminosilicates possess biological activity, either positive or negative. Talc and silica have been used in skin care for many decades, while well defined structures and catalytic activity make aluminosilicates an attractive model system for protein and enzyme mimetics. Recent results have also demonstrated that natural, biologically nontoxic zeolites are very effective as glucose adsorbents, and this has been suggested as a potential medication for individuals suffering from diabetes mellitus.”

“There also seems to be a relationship between p21WAF1/CIP1 and another protein kinase involved in cell "decisions" about proliferation, arrest or apoptosis, namely c-Jun N-terminal kinase (JNK) 1. JNK-1 is a member of the recently discovered stress-activated protein kinases. Interestingly, while in reaction to stress such kinase activation results in apoptosis, its activation in some cancer cells actually promotes uncontrolled proliferation. This is particularly obvious in the human lung adenocarcinoma cell line A549. Research has shown that p21WAF1/CIP1 inhibits JNK-1, and recent work indicates that those two molecules form a tight complex. Inactivation of JNK-1 may be part of the reason why antioxidants enhance cytotoxicity of chemotherapeutic agents towards cancer cells, while, on the other hand, they protect neurons from apoptosis caused by free radical damage.”

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[Colic M, Pavelic K. 2000. Molecular mechanisms of anticancer activity of natural dietetic products. \*J Mol Med.\* 78\(6\): 333-6.](#)

“The aim of one study was to evaluate the antiviral properties of a natural non-toxic zeolite. Herein, a fine powder of micronized zeolite (MZ) was obtained. Different viral suspensions were treated with MZ in concentrations ranging from 0.5 to 50 mg/ml. The viral proliferation was evaluated by optical microscope as percentage of cytopathic effect (CPE). Human adenovirus 5, herpes simplex virus type 1 (HSV 1) and human enteroviruses (coxsackievirus B5 and echovirus 7) were used in the antiviral assay. Concentrations of 0.5 and 5 mg/ml of MZ induced a very low antiviral effect or the antiviral was not observed at all, while concentrations of 12, 25 and 50 mg/ml of MZ induced a significant inhibitory effect upon viral proliferation. MZ inhibited the viral proliferation of HSV 1, coxsackievirus B5 and echovirus 7 more efficiently than adenovirus 5. The antiviral effect of MZ seems to be nonspecific and is more likely based on the incorporation of viral particles into pores of MZ aggregates than ion exchange properties of the zeolite. Preliminary results indicate a possibility of therapeutic application of MZ, either locally (skin) against herpesvirus infections or orally in cases of adenovirus or enterovirus infections.”

“The aim of this study was to evaluate the antiviral properties of clinoptilolite, a natural non-toxic zeolite. Herein, a fine powder of micronized zeolite (MZ) was obtained by tribomechanical micronization of natural clinoptilolite. Different viral suspensions were treated with MZ in concentrations ranging from 0.5 to 50mg/ml. The viral proliferation was evaluated by optical microscope as percentage of cytopathic effect (CPE). Human adenovirus 5, herpes simplex virus type 1 (HSV 1) and human enteroviruses (coxsackievirus B5 and echovirus 7) were used in the antiviral assay. Concentrations of 0.5 and 5 mg/ml of MZ induced a very low antiviral effect or the antiviral was not observed at all, while concentrations of 12, 25 and 50mg/ml of MZ induced a significant inhibitory effect upon viral proliferation. MZ inhibited the viral proliferation of HSV 1, coxsackievirus B5 and echovirus 7 more efficiently than adenovirus 5. The antiviral effect of MZ seems to be non-specific and is more likely based on the incorporation of viral particles into pores of MZ aggregates than ion exchange properties of clinoptilolite. Our preliminary results indicate a possibility of therapeutical application of MZ, either locally (skin) against herpesvirus infections or orally in cases of adenovirus or enterovirus infections.”

[Gree M, Pavelic K. 2005. Antiviral properties of clinoptilolite. \*Microporous and Mesoporous Materials\* 79\(1-3\): 165-9.](#)

“The aim of a prospective, open, and controlled parallel-group study was to investigate the effects of supplementation with another zeolite on the cellular immune system in patients undergoing treatment for immunodeficiency disorder. A total of 61 patients were administered daily zeolite doses for 6 to 8 weeks, during which the patients' primary medical therapy was continued unchanged. Blood and lymphocyte counts were performed at baseline and at the end of the study. Blood count parameters were not relevantly affected in either of the two treatment groups. Zeolite administration resulted in significantly increased CD4+, CD19+, and HLA-DR+ lymphocyte counts and a significantly decreased CD56+ cell count. No adverse reactions to the treatments were observed.”

“The aim of this prospective, open, and controlled parallel-group study was to investigate the effects of supplementation with TMAZ on the cellular immune system in patients undergoing treatment for immunodeficiency disorder. A total of 61 patients were administered daily TMAZ doses of 1.2 g (Lycopenomin) and 3.6 g (Megamin) for 6 to 8 weeks, during which the patients' primary medical therapy was continued unchanged. Blood and lymphocyte counts were performed at baseline and at the end of the study. Blood count parameters were not relevantly affected in either of the two treatment groups. Megamin administration resulted in significantly increased CD4+, CD19+, and HLA-DR+ lymphocyte counts and a significantly decreased CD56+ cell count. Lycopenomin was associated with an increased CD3+ cell count and a decreased CD56+ lymphocyte count. No adverse reactions to the treatments were observed.”

[Ivkovic S, Deutsch U, Silberbach A, Walraph E, Mannel M. 2004. Dietary supplementation with the tribomechanically activated zeolite clinoptilolite in immunodeficiency: Effects on the immune system. \*Adv Ther.\* 21\(2\): 135-47.](#)