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NutraceuticsRx

Science Based Nutrition

This is for informational purposes only. NRx Fucoidan is a dietary supplement and not intended to diagnose, treat, cure or prevent any disease. These statements have not been evaluated by the FDA

Contents

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Introductjon

Ginnovay-Fucoidan (GV-Fucoidan) is a type of glyconutrient as a new and more specialized type of nutraceutical. The main effective ingredient in Fucoidan is the fucose, one of the eight essential biological sugars. Since 1996, a total of four Nobel Prizes in medicine have been awarded for work in glycobiology. Unlike other nutritional supplements, Fucoidan provide special saccharide, biological sugars, which have recently been identified as being absolutely essential for cell-to-cell communication through glycoproteins and glycolipids.

Typically only glucose and galactose are in the foods we eat so we don't consume Fucose and must produce over thirty-four different enzymatic reactions to generate intermediate molecules to make Fucose. During the conversion process if there is any problem in any step (due to toxins, stress etc) it will cause a severe and chronic disease. Now there are evidences that people in Japan who consume large quantities of these seaweeds (Fucoidan) have the longest lifespan.

Fucoidan produced by BGG is extracted from two species of brown seaweeds, *Cladosiphon okamuranus* and *Ascophyllum nodosum*. Fucoidan from *Cladosiphon okamuranus* has a typical structure based on a backbone of L-fucose (Nagaoka et al., 1999). More recent studies identified a different structure for Fucoidan from *Ascophyllum nodosum* (Chevolot et al., 1999, 2001). Both *Cladosiphon okamuranus* and *Ascophyllum nodosum* were used by BGG is high quality from natural, deep, cold oceanic waters under excellent growth conditions. There is no any contamination around these fjords. The seaweed is harvested by collecting freshly cut plants that float to the surface, rather than by dredging. This ensures that the seaweed is free from contamination and minimizes the environmental impact. Both seaweeds provide excellent Fucoidan.

Why Ginnovay-Fucoidan and its advantage

Characters of Ginnovay Fucoidan by BGG Advanced Technology

- ξ One of the highest concentrated fucoidan available in the market ξ Good water-soluble
- ξ Low heavy metal

Source_ÖGV- Fucoidan are natural and free from pollution.

High Purification Technology: GV-Fucoidan is highest concentrated Fucoidan available in the market as far as we know, with minimum effective dosage 285 mg of GV-Fucoidan 70% per day. **Low Heavy Metal Technology:** The heavy metal of natural seaweed is high because of natural seaweed character. With BGG Technology **GV- Fucoidan** heavy metal is <20ppm, arsenic <4ppm, which assure the safety usage.

Solvent Residue: GV Fucoidan has no solvent residue. **Water Soluble:**

one of the best water soluble Fucoidan Stability: GV-Fucoidan has 36

month shelf life under normal storage.

Product Description

Ginnovay™ Fucoidan 50- 70% is a pure white powder extracted and concentrated from Ascophyllum Nodosum and Cladosiphon Okamuranus, marine algae.
Ginnovay™-Fucoidan consists primarily of fucose, fucoidan, and other a little bit of galatose, xylose, etc. essential biologic sugars.

Application & Properties

1. **Anti-cancer:**
   Fucoidan has been shown to be effective in the treatment of certain cancers, specifically digestive system cancers. It appears to have two anti-cancer mechanisms: One being that it causes certain types of rapidly growing cancer cells to self-destruct (apoptosis); the other is that fucoidan itself kills cancer cells without affecting normal cells.
2. **Antipathogenic**
   Fucoidan has poent antiviral properties towards virused such RSV, HIV. Fucoidan block the entrance of viruses into cells.
3. **Benefits to the stomach:**
   a. By clinical trial showed Fucoidan can treat inflammation in the stomach (gastritis) as well as ulceration of the stomach or duodenum (peptic ulcer disease) caused by an infection of the stomach of the bacterium *Helicobacter pylori* and protects the stomach mucous membrane from damage;
   b. Activates stomach peristalsis; c.
   Increases gastric juice secretion;

d. Prevents gastric ulcer.

4. **Anticoagulant and antithrombotic activity**

Fucoidan is a potent inhibitor of platelet aggregation in vivo. Fucoidan has a specific anticoagulant activity by the activated partial thromboplastin time assay like heparin with good potential antithrombotic qualities.

5. **Anti-oxidation**

Fucoidan significantly attacks free radicals and hydroxide radicals.

5. **Activating Immune System**.

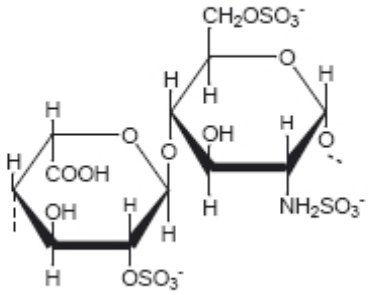
6. **Detoxificaton:** it is possible to use macroalgae to chelate undesired metals from the body, and this has been used to benefit radiateion-expsed persons.

7. **Lowering High Cholesterol Levels**: part of this activity is similar to that seen for other soluble fiber-containing foods (such as oats). Cholesterol binds to the soluble fibers in the bowel, where they are excreted (rather than being bound to bile salts and processed)

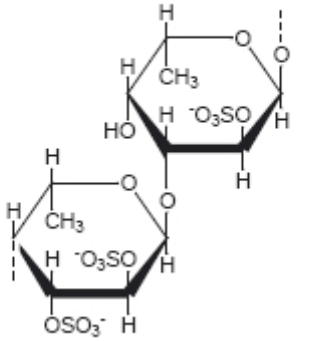
8. **Amelioration of diabetes:** The polysaccharide components of macroalgae serve the same function as other soluble fibre, which modify the uptake of glucose in the gut.

Fucoidan Structure

A. Heparin



B. Fucoidan fraction from *A. nodosum*



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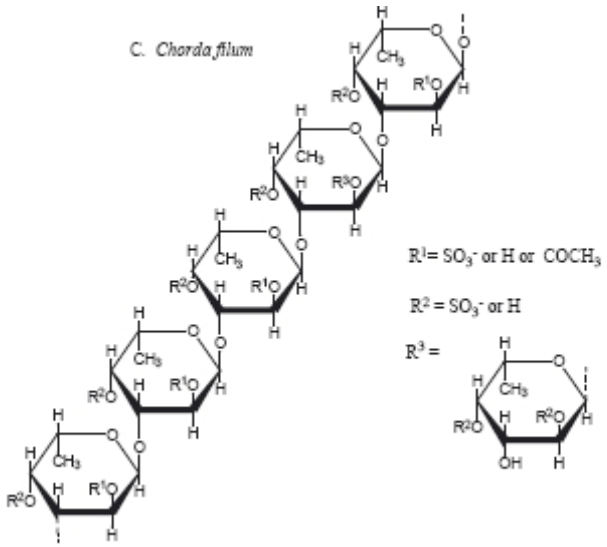

Common structures in fucoidans from brown algae. Disaccharide structure associated with anticoagulant polysaccharides. (A) The main repeating unit [4-_.L-IdopA2OSO3- (1-3)-_.D-GlycpNSO3-6OSO3-(1-]found in the widely used anticoagulant polysaccharide anticoagulant activity, as a potentiator of antithrombin, but has activity byother routes such as activation of heparin cofactor II. (B) The reqeating unit [4)- _.1 Fucp(2,3di-OSO3-)(1-3)-_.-L-Fucp(2OSO3—(1-3) - _.-Fucp(2OSO3-(1-3)]from A. Nodosum (C) The quasi-repeat unit klentified in fucoidan from C filum

ξ Reference

1) Obluchinskaya E.D. et al. Contents of alginic acid and fucoidan in fucus algae of the Barents Sea Source. ***Prikladnaya Biokhimiya i Mikrobiologiya***. 38,(2): 213-216, 2002. 2) Nagaoka M, Shibata H, Kimura-Takagi I, et al. Anti-ulcer effects and biological activities of polysaccharides from marine algae. ***Biofactors.*** 12(1-4):267-274, 2000.

3) Shibata H.,et al. Inhibitory effect of Cladosiphon fucoidan on the adhesion of Helicobacter pylori to human gastric cells. ***Journal of Nutritional Science & Vitaminology.*** 45(3):325-336, 1999.

4) Shibata H. et al. Properties of fucoidan from Cladosiphon okamuranus tokida in gastric mucosal protection. ***Biofactors.*** 11(4):235-45, 2000.

5) Zhao Xue et al. The study of antioxidant activities of fucoidan from Laminaria japonica. ***High technologyletters.*** 11(1):91-94, 2005

6) Soeda S. _ÈPreparation of aminated fucoidan and its evaluation as an antithrombotic and antilipemic agent.***Biological & Pharmaceutical Bulletin.*** 17 (6):784-8, 1994.

7) Aisa Y. et al. Fucoidan induces apoptosis of human HS-sultan cells accompanied by activation of caspase-3 and down-regulation of ERK pathways.
American Journal of Hematology. 78 (1):7-14, 2005 Jan.

8) Itoh H. et al. Antitumor activity and immunological properties of marine algal polysaccharides, especially fucoidan, prepared from Sargassum thunbergii of Phaeophyceae. ***Anticancer Research.*** 13(6A):2045-52, 1993 Nov-Dec.

9)Zhang XW. et al. Inhibition of selectin function and leukocyte rolling protects against dextran sodium sulfate-induced murine colitis. ***Scandinavian Journal of Gastroenterology.*** 36 (3):270-5, 2001

10) Theveniaux, Jocelyne, et al. Venous antithrombotic and anticoagulant activities of a fucoidan fraction. ***Thrombosis & Haemostasis.*** 74(5), 1280-1285, 1995

12) Nellore K. Inhibition of leukocyte adherence enables venular control of capillary perfusion in streptozotocin-induced diabetic rats. ***Microcirculation.*** 11(8):645-54, 2004.

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MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL PRODUCT AND IDENTIFICATION

Material Name……..: Fucoidan 70% (Ascophyllum Nodosum)

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient Name	
Fucose	>28%
Fucoidan	!70%

SECTION 3. HAZARDS IDENTIFCATION

EMERGENCY OVERVIEW

Physical State……: Powder

Color……..: Light Yello White

POTENTIAL HEALTH EFFECTS

Heavy exposure may be irritating to eyes.

SECTION 4. FIRST AID MEASURES

Inhalation……: Remove to fresh air

Skin Contact……...: Rinse with water

Eye Contact ……: Rinse eyes thoroughly with water for 5 minutes

Spill procedure... ...: Sweep up, place in plastic bag for disposal. Mop up and wash spill site. SECTION 5.

HANDLING AND STORAGE

Handling and Storage

Precautions……..: Store in cool and dry place, and in sealed container. Keep from moisture.

SECTION 6. STABILITY AND REACTIVITY

Stable if keep in cool and dry place.

Light-sensitive.

SECTION 7 TRANSPORTATION INFORMATION

Non-hazardous for air, sea, and road freight.

SECTION 8 ECOLOGICAL INFORMATION

The waste of this substance is not dangerous and harmful.

The information presented on this MSDS is, to the best of our knowledge, accurate and reliable. It is provided in good faith. It is the responsibility of the user to evaluate the relevance and completeness of this information for their application and to determine the safety, suitability and status under applicable regulations relating to this product of byproducts arising out of their process.

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 2005060803

PRODUCT : FUCOIDAN70%

PRODUCT NO.	:	GD-244	PACKAGE	:	10KG/CARTON
BATCH NO.	:	050506GD-244	DATE OF MANUFACTURE	:	May.6, 2005
QUANTITY	:	10KG	DATE OF CERTIFICATE	:	May.8, 2005

ANALYSIS ITEMS	SPECIFICATIONS	TEST METHOD	RESULTS
SOURCE	ASSYCOLLUM NODOSUM		CONFORMED
APPEARANCE	LIGHTYELLOW WHITE POWDER	ORGANOLEPTIC	CONFORMED
CLARITY	CLEAR	CHP2000	CONFORMED
MOISTURE	< 8.00%	1g/105__3h	
MERCURY	< 0.5 ppm	ICP/MS	Conformed
ARSENIC	< 2 ppm	ICP/MS	Conformed
CADMIUM	< 0.5ppm	ICP/MS	Conformed
LEAD	< 0.5 ppm	ICP/MS	Conformed
ASSAY: (FUCOSE)	28.00% MIN	UV	31.91%
(FUCOIDAN)	70.00% MIN	UV	79.78%
MICROBIAL CONTAMINATION			
TOTAL AEROBIC COUNT	< 1000/g	AOAC	CONFORMED
YEAST & MOULD	< 100/g	AOAC	CONFORMED
E. COLI	NEGATIVE	AOAC	CONFORMED
SALMONELLA	NEGATIVE	AOAC	CONFORMED

QUALITY CONTROL MANAGER CHECK ANALYST

Kosher Certified

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F u c o i d a n a n d D i s e a s e s

The followings are the scientific paper cited from Medliner 1966-2005 with key word Fucoidan as your references

1. Cancer (14)
2. Stomach (6)
3. Antioxidant (5)
4. Immune System (8)
5. Cholesterol (24)
6. Inflammation (30)
7. Diabetes (3)
8. Anti-virus (28)
9. Clinical data for H. Pylori & non-ulcer dyspepsia
10. Dosage Recommendation
Note: ( ) number of articles

Cancer (1-14)

Result <1> (cancer) **Page 1-3**

Aisa Y. Miyakawa Y. Nakazato T. Shibata H. Saito K. Ikeda Y. Kizaki M. Department of Internal Medicine, Keio University School of Medicine, Tokyo, Japan. Fucoidan induces apoptosis of human HS-sultan cells accompanied by activation of caspase-3 and down-regulation of ERK pathways.
American Journal of Hematology. 78(1):7-14, 2005 Jan.

Result <2> (cancer)
Inoue M. Fujii H. Kaseyama H. Yamashina I. Nakada H.
Faculty of Engineering, Kyoto Sangyo University, Kita-ku, Kyoto, 603-8555, Japan.
Stimulation of macrophages by mucins through a macrophage scavenger receptor.
Biochemical & Biophysical Research Communications. 264 (1):276-80, 1999 Oct 14.

Result <3> (cancer)
Shibata H. Iimuro M. Uchiya N. Kawamori T. Nagaoka M. Ueyama S. Hashimoto S. Yokokura T. Sugimura T. Wakabayashi K.
Cancer Prevention Division, National Cancer Center Research Institute, 5-1-1, Tsukiji, Chuo-ku, Tokyo 104-0045, Japan.

Preventive effects of Cladosiphon fucoidan against Helicobacter pylori infection in Mongolian gerbils.
Helicobacter. 8(1):59-65, 2003 Feb.
Result <4> (cancer)
Liu JM. Haroun-Bouhedja F. Boisson-Vidal C.
Laboratoire de Recherche sur les Macromolecules (URM 7540, URM2, CNRS/IFREMER) Institut Galilee, Universite Paris 13, Villetaneuse, France.
Analysis of the in vitro inhibition of mammary adenocarcinoma cell adhesion by sulphated polysaccharides.
Anticancer Research. 20(5A):3265-71, 2000 Sep-Oct.
Result <5> (cancer)
Zugmaier G. Favoni R. Jaeger R. Rosen N. Knabbe C.
Department of Hematology/Oncology, Philipps-University, Marburg, Germany.
Polysulfated heparinoids selectively inactivate heparin-binding angiogenesis factors.
Annals of the New York Academy of Sciences. 886:243-8, 1999.
Result <6> (cancer)
Incardona F. Lawler J. Cataldo D. Panet A. Legrand Y. Foidart JM. Legrand C. U 353 INSERM, Proteases et Proteines Adhesives des Cellules Vasculaires et Sanguines, Hopital Saint Louis, Paris, France.
Result <7> (cancer)
Riou D. Colliec-Jouault S. Pinczon du Sel D. Bosch S. Siavoshian S. Le Bert V. Tomasoni C. Sinquin C. Durand P. Roussakis C.
ISOMer (Institut des Substances et Organismes de la Mer), SMAB, Laboratoire de Pharmacologie Marine, Faculte de Pharmacie, Nantes, France.
Result <8> (cancer)
Itoh H. Noda H. Amano H. Ito H.
Laboratory of Marine Biochemistry, Faculty of Bioresources, Mie University, Tsu, Japan.
Immunological analysis of inhibition of lung metastases by fucoidan (GIV-A) prepared from brown seaweed Sargassum thunbergii.
Anticancer Research. 15(5B):1937-47, 1995 Sep-Oct.
Result <9> (cancer)
Kobayashi T. Honke K. Miyazaki T. Matsumoto K. Nakamura T. Ishizuka I. Makita A.
Biochemistry Laboratory, Hokkaido University School of Medicine, Sapporo, Japan.
Hepatocyte growth factor specifically binds to sulfoglycolipids.
Journal of Biological Chemistry. 269 (13):9817-21, 1994 Apr 1.
Result <10> (cancer)
Itoh H. Noda H. Amano H. Zhuaug C. Mizuno T. Ito H.
Laboratory of Marine Biochemistry, Faculty of Bioresources, Mie University, Japan.

Antitumor activity and immunological properties of marine algal polysaccharides, especially fucoidan, prepared from Sargassum thunbergii of Phaeophyceae.
Anticancer Research. 13 (6A):2045-52, 1993 Nov-Dec.

Result <11> (cancer)
Steuer MK. Gabius HJ. Bardosi A. Matthias R.
Klinik und Poliklinik fur Hals-Nasen-Ohrenheilkunde, Universitat Koln.
[Histochemical identification of endogenous lectins using labelled neoglycoproteins in human head-and-neck squamous cell carcinoma]. [Review] [33 refs] [German]
Laryngo- Rhino- Otologie. 70 (5):243-9, 1991 May.

Result <12> (cancer)
Kayser K. Gabius HJ. Ciesiolka T. Ebert W. Bach S.
Department of Pathology, Thoraxklinik Heidelberg-Rohrbach, FRG.
Histopathologic evaluation of application of labeled neoglycoproteins in primary bronchus carcinoma.
Human Pathology. 20(4):352-60, 1989 Apr.

Result <13> (cancer)
Taraboletti G. Roberts DD. Liotta LA.
Laboratory of Pathology, National Cancer Institute, Bethesda, Maryland 20892.
Thrombospondin-induced tumor cell migration: haptotaxis and chemotaxis are mediated by different molecular domains.
Journal of Cell Biology. 105(5):2409-15, 1987 Nov.

Result <14> (cancer)
Hashimoto S. Nomoto K. Nagaoka M. Yokokura T.
In vitro and in vivo release of cytostatic factors from Lactobacillus casei-elicited peritoneal macrophages after stimulation with tumor cells and immunostimulants.
Cancer Immunology, Immunotherapy. 24(1):1-7, 1987.

2. Stomach (1-6) Page 3-4

Result <1> (stomach)
Shibata H. Nagaoka M. Takagi IK. Hashimoto S. Aiyama R. Yokokura T. Yakult Central Institute for Microbiological Research, Kunitachi, Tokyo, Japan. hideyuki-shibata@yakult.co.jp
Effect of oligofucose derivatives on acetic acid-induced gastric ulcer in rats.
Bio-Medical Materials & Engineering. 11(1):55-61, 2001.

Result <2> (stomach)
Nagaoka M. Shibata H. Kimura-Takagi I. Hashimoto S. Aiyama R. Ueyama S. Yokokura T.
Yakult Central Institute for Microbiological Research, Kunritachi, Tokyo, Japan.
masato-nagaoka@yakult.co.jp

Anti-ulcer effects and biological activities of polysaccharides from marine algae. [Review] [46 refs]
Biofactors. 12(1-4):267-74, 2000.
Result <3> (stomach)
Shibata H. KimuraTakagi I. Nagaoka M. Hashimoto S. Sawada H. Ueyama S. Yokokura T.
Yakult Central Institute for Microbiological Research, Tokyo, Japan.
Inhibitory effect of Cladosiphon fucoidan on the adhesion of Helicobacter pylori to human gastric cells.
Journal of Nutritional Science & Vitaminology. 45(3):325-36, 1999 Jun.
Result <4> (stomach)
Shibata H. Nagaoka M. Takagi IK. Hashimoto S. Aiyama R. Yokokura T.
Yakult Central Institute for Microbiological Research, Kunitachi, Tokyo, Japan.
hideyuki-shibata@yakult.co.jp
Effect of oligofucose derivatives on acetic acid-induced gastric ulcer in rats.
Bio-Medical Materials & Engineering. 11(1):55-61, 2001.
Result <5> (stomach)
Shibata H. Kimura-Takagi I. Nagaoka M. Hashimoto S. Aiyama R. Iha M. Ueyama S. Yokokura T.
Yakult Central Institute for Microbiological Research, Kunitachi, Tokyo, Japan.
hideyuki-shibata@yakult.co.jp
Properties of fucoidan from Cladosiphon okamuranus tokida in gastric mucosal protection.
Biofactors. 11(4):235-45, 2000.
Result <6> (stomach)
Nagaoka M. Shibata H. Kimura-Takagi I. Hashimoto S. Aiyama R. Ueyama S. Yokokura
Yakult Central Institute for Microbiological Research, Kunritachi, Tokyo, Japan.
masato-nagaoka@yakult.co.jp
Anti-ulcer effects and biological activities of polysaccharides from marine algae. [Review] [46 refs]
Biofactors. 12(1-4):267-74, 2000.

3. Antioxidant (1-5)

Result <1> (Antioxidant)
Ruperez P. Ahrazem O. Leal JA.
Departamento de Metabolismo y Nutricion, Instituto del Frio, Consejo Superior de Investigaciones Cientificas (CSIC), Ciudad Universitaria s/n, E 28040 Madrid, Spain.
pruperez@if.csic.es
Potential antioxidant capacity of sulfated polysaccharides from the edible marine brown seaweed Fucus vesiculosus.
Journal of Agricultural & Food Chemistry. 50 (4):840-5, 2002 Feb 13.

Result <2> (Antioxidant)
Carvalho MD. Harada LM. Gidlund M. Ketelhuth DF. Boschcov P. Quintao EC.
Lipids Laboratory (LIM/10), University of Sao Paulo Medical School, Sao Paulo, Brazil.
Macrophages take up triacylglycerol-rich emulsions at a faster rate upon co-incubation with native and modified LDL: An investigation on the role of natural chylomicrons in atherosclerosis.
Journal of Cellular Biochemistry. 84(2):309-23, 2002.
Result <3> (Antioxidant)
Mitchell DJ. Yu J. Tyml K.
Department of Pharmacology and Toxicology, University of Western Ontario, London, Canada.
Local L-NAME decreases blood flow and increases leukocyte adhesion via CD18.
American Journal of Physiology. 274(4 Pt 2):H1264-8, 1998 Apr.
Result <4> (Antioxidant)
Kalayoglu MV. Byrne GI.
Department of Medical Microbiology and Immunology, University of Wisconsin Medical School, Madison 53706, USA.
Induction of macrophage foam cell formation by Chlamydia pneumoniae.
Journal of Infectious Diseases. 177(3):725-9, 1998 Mar.
Result <5> (Antioxidant)
Ekman T. Risberg B. Bagge U. Braide M.
Department of Medicine, University of Gothenburg, Sweden.
Blocking of endothelial-leukocyte interaction (rolling) does not improve reflow in the rat gastric mucosa after hemorrhagic shock and retransfusion.
Shock. 2(4):257-61, 1994 Oct.

4. Immune Modulation (1-8) Page 5-6

Result <1> (Immune Modulation)
Zhang Z. Guo K. Schluesener HJ.
Institute of Brain Research, University of Tuebingen, Calwer Str. 3, D-72076 Tuebingen, Germany. zhangzhiren@yahoo.com
The immunostimulatory activity of CpG oligonucleotides on microglial N9 cells is affected by a polyguanosine motif.
Journal of Neuroimmunology. 161(1-2):68-77, 2005 Apr.
Result <2> (Immune Modulation)
Zhang Z. Weinschenk T. Schluesener HJ.
Institute of Brain Research, University of Tuebingen, Calwer Street 3, Tuebingen D-72076, Germany. zhangzhiren@yahoo.com
Uptake, intracellular distribution, and novel binding proteins of immunostimulatory CpG oligodeoxynucleotides in microglial cells.

Journal of Neuroimmunology. 160(1-2):32-40, 2005 Mar.
Result <3> (Immune Modulation)
Eiwegger T. Stahl B. Schmitt J. Boehm G. Gerstmayr M. Pichler J. Dehlink E. Loibichler C. Urbanek R. Szepfalusi Z.
Department of Pediatrics and Juvenile Medicine, University of Vienna, Medical School, A-1090 Vienna, Austria.
Human milk--derived oligosaccharides and plant-derived oligosaccharides stimulate cytokine production of cord blood T-cells in vitro.
Pediatric Research. 56(4):536-40, 2004 Oct.
Result <4> (Immune Modulation)
Brenner BC. Kadel S. Grigorovich S. Linderkamp O.
Department of Cardiology, Children's Hospital, Moorenstrasse 5, Dusseldorf, Germany. Brenner@med.uni-duesseldorf.de
Mechanisms of L-selectin-induced activation of the nuclear factor of activated T lymphocytes (NFAT).
Biochemical & Biophysical Research Communications. 291(2):237-44, 2002 Feb 22.
Result <5> (Immune Modulation)
Radsak MP. Hilf N. Singh-Jasuja H. Braedel S. Brossart P. Rammensee HG. Schild H.
University Medical Hospital, Department Hematology/Oncology, University of Tubingen, Tubingen, Germany.
The heat shock protein Gp96 binds to human neutrophils and monocytes and stimulates effector functions.
Blood. 101(7):2810-5, 2003 Apr 1.
Result <6> (Immune Modulation)
Machelska H. Cabot PJ. Mousa SA. Zhang Q. Stein C.
Department of Anesthesiology and Critical Care Medicine, Johns Hopkins University, Baltimore, MD 21287-8711, USA.
Pain control in inflammation governed by selectins.[see comment].
Comments
Comment in: Nat Med. 1998 Dec;4(12):1359-60; PMID: 9846566
Nature Medicine. 4(12):1425-8, 1998 Dec.
Result <7> (Immune Modulation)
Paresce DM. Ghosh RN. Maxfield FR.
Pathology Department, Columbia University, New York, New York 10032, USA.
Microglial cells internalize aggregates of the Alzheimer's disease amyloid beta-protein via a scavenger receptor.
Neuron. 17 (3):553-65, 1996 Sep.
Result <8> (Immune Modulation)
Mallett S. Rosen SD. Hyun W.

Department of Anatomy, University of California, San Francisco, USA. mallett@molbiol.ox.ac.uk
Calcium-dependent lectin activity with novel distribution on thymocyte subsets.
European Journal of Immunology. 26(1):77-83, 1996 Jan.

5. Cholesterol (1-24) Page 7-11

Result <1> (Cholesterol)
Santiago-Garcia J. Kodama T. Pitas RE.
Gladstone Institutes of Cardiovascular Disease and Neurological Disease, Cardiovascular Research Institute, Department of Pathology, University of California, San Francisco, California 94143, USA.
The class A scavenger receptor binds to proteoglycans and mediates adhesion of macrophages to the extracellular matrix.
Journal of Biological Chemistry. 278(9):6942-6, 2003 Feb 28.
Result <2> (Cholesterol)
Bruneau N. Richard S. Silvy F. Verine A. Lombardo D.
INSERM U-559, Unite de Recherche de Physiopathologie des Cellules Epitheliales and Equipe d'Accueil 3289, Universite de la Mediterranee, Faculte de Medecine, Marseilles, France. nadine.brunewu@medecine.univ-mrs.fr
Lectin-like Ox-LDL receptor is expressed in human INT-407 intestinal cells: involvement in the transcytosis of pancreatic bile salt-dependent lipase.
Molecular Biology of the Cell. 14(7):2861-75, 2003 Jul.
Result <3> (Cholesterol)
Antic A. Dzenko KA. Pachter JS.
Blood-Brain Barrier Laboratory, Department of Pharmacology, University of Connecticut Health Center, 263 Farmington Avenue, Farmington, Connecticut, 06030, USA.
Engagement of the scavenger receptor is not responsible for beta-amyloid stimulation of monocytes to a neurocytopathic state.
Experimental Neurology. 161(1):96-101, 2000 Jan.
Result <4> (Cholesterol)
Yancey PG. Miles S. Schwegel J. Jerome WG.
Department of Pathology, Wake Forest University School of Medicine, Medical Center Blvd., Winston-Salem, NC 27157-1092, USA.
Uptake and trafficking of mildly oxidized LDL and acetylated LDL in THP-1 cells does not explain the differences in lysosomal metabolism of these two lipoproteins.
Microscopy & Microanalysis. 8 (2):81-93, 2002 Apr.
Result <5> (Cholesterol)
Cornicelli JA. Butteiger D. Rateri DL. Welch K. Daugherty A.

Department of Vascular Diseases, Parke Davis, 2800 Plymouth Road, Ann Arbor, MI 48106, USA.
Interleukin-4 augments acetylated LDL-induced cholesterol esterification in macrophages.
Journal of Lipid Research. 41(3):376-83, 2000 Mar.
Result <6> (Cholesterol)
Fukasawa M. Hirota K. Adachi H. Mimura K. Murakami-Murofushi K. Tsujimoto M. Arai H. Inoue K.
Department of Health Chemistry, Faculty of Pharmaceutical Sciences, University of Tokyo, Japan.
Chinese hamster ovary cells expressing a novel type of acetylated low density lipoprotein receptor. Isolation and characterization.
Journal of Biological Chemistry. 270(4):1921-7, 1995 Jan 27.
Result <7> (Cholesterol)
Fuhrman B. Brook GJ. Aviram M.
Lipid Research Unit, Rambam Medical Center, Haifa, Israel.
Lipid-protein particles secreted from activated platelets reduce macrophage uptake of low density lipoprotein.
Atherosclerosis. 89(2-3):163-73, 1991 Aug.
Result <8> (Cholesterol)
Kalayoglu MV. Byrne GI.
Department of Medical Microbiology and Immunology, University of Wisconsin Medical School, Madison 53706, USA.
Induction of macrophage foam cell formation by Chlamydia pneumoniae.
Journal of Infectious Diseases. 177(3):725-9, 1998 Mar.
Result <9> (Cholesterol)
Paresce DM. Ghosh RN. Maxfield FR.
Pathology Department, Columbia University, New York, New York 10032, USA.
Microglial cells internalize aggregates of the Alzheimer's disease amyloid beta-protein via a scavenger receptor.
Neuron. 17(3):553-65, 1996 Sep.
Result <10> (Cholesterol)
Fukasawa M. Hirota K. Adachi H. Mimura K. Murakami-Murofushi K. Tsujimoto M. Arai H. Inoue K.
Department of Health Chemistry, Faculty of Pharmaceutical Sciences, University of Tokyo, Japan.
Chinese hamster ovary cells expressing a novel type of acetylated low density lipoprotein receptor. Isolation and characterization.
Journal of Biological Chemistry. 270(4):1921-7, 1995 Jan 27.
Result <11> (Cholesterol)

Soeda S. Ohmagari Y. Shimeno H. Nagamatsu A.
Department of Biochemistry, Faculty of Pharmaceutical Sciences, Fukuoka University, Japan.
Preparation of aminated fucoidan and its evaluation as an antithrombotic and antilipemic agent.
Biological & Pharmaceutical Bulletin. 17(6):784-8, 1994 Jun.
Result <12> (Cholesterol)
Zhang Q. Young TF. Ross RF.
Veterinary Medical Research Institute, Iowa State University, Ames 50011.
Glycolipid receptors for attachment of Mycoplasma hyopneumoniae to porcine respiratory ciliated cells.
Infection & Immunity. 62(10):4367-73, 1994 Oct.
Result <13> (Cholesterol)
Soeda S. Ohmagari Y. Shimeno H. Nagamatsu A.
Department of Biochemistry, Faculty of Pharmaceutical Sciences, Fukuoka University, Japan.
Preparation of oversulfated fucoidan fragments and evaluation of their antithrombotic activities.
Thrombosis Research. 72(3):247-56, 1993 Nov 1.
Result <14> (Cholesterol)
Bottalico LA. Kendrick NC. Keller A. Li Y. Tabas I.
Department of Medicine, Columbia University College of Physicians and Surgeons, New York, NY 10032.
Cholesteryl ester loading of mouse peritoneal macrophages is associated with changes in the expression or modification of specific cellular proteins, including increase in an alpha-enolase isoform.
Arteriosclerosis & Thrombosis. 13(2):264-75, 1993 Feb.
Result <15> (Cholesterol)
Pancake SJ. Holt GD. Mellouk S. Hoffman SL.
Malaria Program, Naval Medical Research Institute, Bethesda, Maryland 20889-5055.
Malaria sporozoites and circumsporozoite proteins bind specifically to sulfated glycoconjugates.
Journal of Cell Biology. 117(6):1351-7, 1992 Jun.
Result <16> (Cholesterol)
Fuhrman B. Brook GJ. Aviram M.
Lipid Research Unit, Rambam Medical Center, Haifa, Israel.
Lipid-protein particles secreted from activated platelets reduce macrophage uptake of low density lipoprotein.
Atherosclerosis. 89 (2-3):163-73, 1991 Aug.

Result <17> (Cholesterol)
Data RE. Williams SB. Roberts DD. Gralnick HR.
Clinical Pathology Department, National Cancer Institute, National Institutes of Health, Bethesda, MD.
Platelets adhere to sulfatides by von Willebrand factor dependent and independent mechanisms.
Thrombosis & Haemostasis. 65(5):581-7, 1991 May 6.
Result <18> (Cholesterol)
Nishikawa K. Arai H. Inoue K.
Department of Health Chemistry, Faculty of Pharmaceutical Sciences, University of Tokyo, Japan.
Scavenger receptor-mediated uptake and metabolism of lipid vesicles containing acidic phospholipids by mouse peritoneal macrophages.
Journal of Biological Chemistry. 265(9):5226-31, 1990 Mar 25.
Result <19> (Cholesterol)
Holt GD. Pangburn MK. Ginsburg V.
Laboratory of Structural Biology, National Institute of Diabetes, Digestive, and Kidney Disease, National Institutes of Health, Bethesda, Maryland 20892.
Properdin binds to sulfatide [Gal(3-SO4)beta 1-1 Cer] and has a sequence homology with other proteins that bind sulfated glycoconjugates.
Journal of Biological Chemistry. 265(5):2852-5, 1990 Feb 15.
Result <20> (Cholesterol)
Holt GD. Krivan HC. Gasic GJ. Ginsburg V.
Laboratory of Structural Biology, National Institute of Diabetes, Digestive and Kidney Diseases, Bethesda, Maryland 20892.
Antistasin, an inhibitor of coagulation and metastasis, binds to sulfatide (Gal(3-SO4) beta 1-1Cer) and has a sequence homology with other proteins that bind sulfated glycoconjugates.
Journal of Biological Chemistry. 264(21):12138-40, 1989 Jul 25.
Result <21> (Cholesterol)
Vijayagopal P. Srinivasan SR. Jones KM. Radhakrishnamurthy B. Berenson GS.
Complexes of low-density lipoproteins and arterial proteoglycan aggregates promote cholesteryl ester accumulation in mouse macrophages.
Biochimica et Biophysica Acta. 837(3):251-61, 1985 Dec 4.
Result <22> (Cholesterol)
Roberts DD. Haverstick DM. Dixit VM. Frazier WA. Santoro SA. Ginsburg V.
The platelet glycoprotein thrombospondin binds specifically to sulfated glycolipids.
Journal of Biological Chemistry. 260 (16):9405-11, 1985 Aug 5.
Result <23> (Cholesterol)

Via DP. Plant AL. Craig IF. Gotto AM Jr. Smith LC.
Metabolism of normal and modified low-density lipoproteins by macrophage cell lines of murine and human origin.
Biochimica et Biophysica Acta. 833(3):417-28, 1985 Mar 6.
Result <24> (Cholesterol)
Clevidence BA. Morton RE. West G. Dusek DM. Hoff HF.
Cholesterol esterification in macrophages. Stimulation by lipoproteins containing apo B isolated from human aortas.
Arteriosclerosis. 4(3):196-207, 1984 May-Jun.

6. Inflammation (1-30) Page 11-15

Result <1> (Inflammation)
Ritter LS. Stempel KM. Coull BM. McDonagh PF.
University of Arizona, College of Nursing, Department of Neurology, Sarver Heart Center, PO Box 245023, Tucson, AZ 85724-5023, USA. lritter@nursing.arizona.edu
Leukocyte-platelet aggregates in rat peripheral blood after ischemic stroke and reperfusion.
Biological Research for Nursing. 6(4):281-8, 2005 Apr.
Result <2> (Inflammation)
Machelska H. Brack A. Mousa SA. Schopohl JK. Rittner HL. Schafer M. Stein C. Klinik fur Anaesthesiologie und operative Intensivmedizin, Charite-Universitatsmedizin, Campus Benjamin Franklin, Hindenburgdamm 30, D-12200 Berlin, Germany.
halina.machelska@charite.de
Selectins and integrins but not platelet-endothelial cell adhesion molecule-1 regulate opioid inhibition of inflammatory pain.
British Journal of Pharmacology. 142(4):772-80, 2004 Jun.
Result <3> (Inflammation)
Kirkham PA. Spooner G. Ffoulkes-Jones C. Calvez R.
Novartis HRC, Horsham, West Sussex, England, UK. paul.kirkham@pharma.novartis.com
Cigarette smoke triggers macrophage adhesion and activation: role of lipid peroxidation products and scavenger receptor.
Free Radical Biology & Medicine. 35(7):697-710, 2003 Oct 1.
Result <4> (Inflammation)
Takano-Ishikawa Y. Goto M. Yamaki K.
National Food Research Institute, Tsukuba, Ibaraki, Japan.
Analysis of leukocyte rolling and migration--using inhibitors in the undisturbed microcirculation of the rat mesentery--on inflammatory stimulation.
Mediators of Inflammation. 13(1):33-7, 2004 Feb.
Result <5> (Inflammation)

Pochechueva TV. Galanina OE. Ushakova NA. Preobrazhenskaya ME. Sablina MA. Nifantiev NE. Tsvetkov YV. Vozney YV. Imberty A. Bovin NV.
Shemyakin Institute of Bioorganic Chemistry, Russian Academy of Sciences, Moscow, Russia. Uncharged P-selectin blockers.
Glycoconjugate Journal. 20(2):91-7, 2004.
Result <6> (Inflammation)
Cetin C. Ozyilmaz M. Baycu C. Kose AA. Karabagli Y.
Department of Plastic and Reconstructive Surgery, Medical School, Osmangazi University, 26480 Meselik Eskisehir, Turkey.
Effects of rolling inhibition on smoke inhalation injury.
Burns. 29(4):307-14, 2003 Jun.
Result <7> (Inflammation)
Kubes P. Payne D. Woodman RC.
Immunology Research Group, Department of Physiology and Biophysics and Department of Medicine, University of Calgary Health Sciences Center, Calgary, Alberta, Canada T2N 4N1. pkubes@ucalgary.ca
Molecular mechanisms of leukocyte recruitment in postischemic liver microcirculation.
American Journal of Physiology - Gastrointestinal & Liver Physiology. 283(1):G139-47, 2002 Jul.
Result <8> (Inflammation)
Zhang XW. Liu Q. Thorlacius H.
Dept. of Surgery, Malmo University Hospital, Lund University, Malmo, Sweden. Inhibition of selectin function and leukocyte rolling protects against dextran sodium sulfate-induced murine colitis.
Scandinavian Journal of Gastroenterology. 36(3):270-5, 2001 Mar.
Result <9> (Inflammation)
Le Filliatre G. Sayah S. Latournerie V. Renaud JF. Finet M. Hanf R.
Service de Pharmacologie, Laboratoire Innothera, 7 - 9 av Francois Vincent Raspail, BP 12, 94111, Arcueil Cedex, France. gael.le.filliatre@innothera.com
Cyclo-oxygenase and lipoxygenase pathways in mast cell dependent-neurogenic inflammation induced by electrical stimulation of the rat saphenous nerve.
British Journal of Pharmacology. 132(7):1581-9, 2001 Apr.
Result <10> (Inflammation)
Serra MF. Diaz BL. Barreto EO. Cordeiro RS. Nazare Meirelles MN. Williams TJ. Martins MA. Silva PM.
Depto de Fisiologia e Farmacodinamica, Instituto Oswaldo Cruz, FIOCRUZ, Rio de Janeiro, Brazil.
Mechanism underlying acute resident leukocyte disappearance induced by immunological and non-immunological stimuli in rats: evidence for a role for the coagulation system.

Inflammation Research. 49(12):708-13, 2000 Dec.
Result <11> (Inflammation)
Verdrengh M. Erlandsson-Harris H. Tarkowski A.
Department of Rheumatology, University of Goteborg, Sweden.
margareta.verdrengh@immuno.gu.se
Role of selectins in experimental Staphylococcus aureus-induced arthritis.
European Journal of Immunology. 30(6):1606-13, 2000 Jun.
Result <12> (Inflammation)
Del Bigio MR. Yan HJ. Campbell TM. Peeling J.
Department of Pathology, University of Manitoba, Winnipeg, Canada.
Effect of fucoidan treatment on collagenase-induced intracerebral hemorrhage in rats.
Neurological Research. 21(4):415-9, 1999 Jun.
Result <13> (Inflammation)
Malhotra R. Ward M. Sim RB. Bird MI.
Cellular Biochemistry Unit, Glaxo-Wellcome Medicines Research Centre, Gunnels Wood Road, Stevenage, Hertfordshire SG1 2NY, UK. RM18326@glaxowellcome.co.uk
Identification of human complement Factor H as a ligand for L-selectin.
Biochemical Journal. 341 (Pt 1):61-9, 1999 Jul 1.
Result <14> (Inflammation)
Ushakova NA. Preobrazhenskaia ME. Nifant'ev NE. Usov AI. Pochechueva TV. Galanina OE. Bovin NV.
Institute of Biomedical Chemistry, Russian Academy of Medical Sciences, Moscow.
[Inhibitory activity of monomeric and polymeric selectin ligands]. [Russian]
Voprosy Meditsinskoi Khimii. 45 (5):375-83, 1999 Sep-Oct.
Result <15> (Inflammation)
Machelska H. Cabot PJ. Mousa SA. Zhang Q. Stein C.
Department of Anesthesiology and Critical Care Medicine, Johns Hopkins University, Baltimore, MD 21287-8711, USA.
Pain control in inflammation governed by selectins.[see comment].
Comments
Comment in: Nat Med. 1998 Dec;4(12):1359-60; PMID: 9846566
Nature Medicine. 4(12):1425-8, 1998 Dec.
Result <16> (Inflammation)
Semenov AV. Mazurov AV. Preobrazhenskaia ME. Ushakova NA. Mikhailov VI. Berman AE. Usov AI. Nifant'ev NE. Bovin NV.
Institute of Experimental Cardiology, Cardiology Research Center, Moscow.
[Sulfated polysaccharides as inhibitors of receptor activity of P-selectin and P-selectin-dependent inflammation]. [Russian]
Voprosy Meditsinskoi Khimii. 44 (2):135-44, 1998 Mar-Apr.

Result <17> (Inflammation)
Granert C. Raud J. Lindquist L.
Department of Infectious Diseases, Huddinge Hospital, Sweden.
The polysaccharide fucoidin inhibits the antibiotic-induced inflammatory cascade in experimental pneumococcal meningitis.
Clinical & Diagnostic Laboratory Immunology. 5(3):322-4, 1998 May.
Result <18> (Inflammation)
Preobrazhenskaya ME. Berman AE. Mikhailov VI. Ushakova NA. Mazurov AV. Semenov AV. Usov AI. Nifant'ev NE. Bovin NV.
Institute of Biomedical Chemistry, Russian Academy of Medical Sciences, Pogodinskaya, Moscow.
Fucoidan inhibits leukocyte recruitment in a model peritoneal inflammation in rat and blocks interaction of P-selectin with its carbohydrate ligand.
Biochemistry & Molecular Biology International. 43(2):443-51, 1997 Oct.
Result <19> (Inflammation)
Davenpeck KL. Steeber DA. Tedder TF. Bochner BS.
Department of Medicine, The Johns Hopkins University School of Medicine, Baltimore, MD 21224, USA.
P- and L-selectin mediate distinct but overlapping functions in endotoxin-induced leukocyte-endothelial interactions in the rat mesenteric microcirculation.
Journal of Immunology. 159 (4):1977-86, 1997 Aug 15.
Result <20> (Inflammation)
Zuniga A. Marques A. Gabaldon M.
Centro de Investigacion, Hospital La Fe, Valencia, Spain.
Proinflammatory activity on rat carotid endothelium of albumins obtained by different procedures.
Thrombosis Research. 86(3):243-54, 1997 May 1.
Result <21> (Inflammation)
Wong J. Johnston B. Lee SS. Bullard DC. Smith CW. Beaudet AL. Kubes P.
Department of Medicine, University of Calgary, Calgary, Alberta T2N 4N1, Canada.
A minimal role for selectins in the recruitment of leukocytes into the inflamed liver microvasculature.
Journal of Clinical Investigation. 99(11):2782-90, 1997 Jun 1.
Result <22> (Inflammation)
Teixeira MM. Hellewell PG.
Imperial College School of Medicine, National Heart and Lung Institute, London.
The effect of the selectin binding polysaccharide fucoidin on eosinophil recruitment in vivo.
British Journal of Pharmacology. 120 (6):1059-66, 1997 Mar.

Result <23> (Inflammation)
Terada LS. Mahr NN. Jacobson ED.
University of Colorado Health Sciences Center, Denver, Colorado 80262, USA. lance.terada@UCHSC.edu
Nitric oxide decreases lung injury after intestinal ischemia.
Journal of Applied Physiology. 81(6):2456-60, 1996 Dec.
Result <24> (Inflammation)
Fuhlbrigge RC. Alon R. Puri KD. Lowe JB. Springer TA.
Department of Medicine, Children's Hospital, Boston, Massachusetts 02115, USA.
Sialylated, fucosylated ligands for L-selectin expressed on leukocytes mediate tethering and rolling adhesions in physiologic flow conditions.
Journal of Cell Biology. 135(3):837-48, 1996 Nov.
Result <25> (Inflammation)
Paresce DM. Ghosh RN. Maxfield FR.
Pathology Department, Columbia University, New York, New York 10032, USA.
Microglial cells internalize aggregates of the Alzheimer's disease amyloid beta-protein via a scavenger receptor.
Neuron. 17(3):553-65, 1996 Sep.
Result <26> (Inflammation)
Shimaoka M. Ikeda M. Iida T. Taenaka N. Yoshiya I. Honda T.
Research Institute for Microbial Diseases, Osaka University, Osaka University Hospital, Japan.
Fucoidin, a potent inhibitor of leukocyte rolling, prevents neutrophil influx into phorbol-ester-induced inflammatory sites in rabbit lungs.
American Journal of Respiratory & Critical Care Medicine. 153(1):307-11, 1996 Jan.
Result <27> (Inflammation)
Bartlett MR. Warren HS. Cowden WB. Parish CR.
Division of Cell Biology, John Curtin School of Medical Research, Australian National University, Canberra.
Effects of the anti-inflammatory compounds castanospermine, mannose-6-phosphate and fucoidan on allograft rejection and elicited peritoneal exudates.
Immunology & Cell Biology. 72(5):367-74, 1994 Oct.
Result <28> (Inflammation)
Hall SE. Savill JS. Henson PM. Haslett C.
Department of Medicine, Royal Postgraduate Medical School, Hammersmith Hospital, London, United Kingdom.
Apoptotic neutrophils are phagocytosed by fibroblasts with participation of the fibroblast vitronectin receptor and involvement of a mannose/fucose-specific lectin.
Journal of Immunology. 153(7):3218-27, 1994 Oct 1.

Result <29> (Inflammation)
Teixeira MM. Hellewell PG.
Department of Applied Pharmacology, National Heart and Lung Institute, London.
Suppression by intradermal administration of heparin of eosinophil accumulation but not oedema formation in inflammatory reactions in guinea-pig skin.
British Journal of Pharmacology. 110(4):1496-500, 1993 Dec.
Result <30> (Inflammation)
Damle NK. Klussman K. Dietsch MT. Mohagheghpour N. Aruffo A.
Bristol-Myers Squibb Pharmaceutical Research Institute, Seattle, WA 98121. GMP-140 (P-selectin/CD62) binds to chronically stimulated but not resting CD4+ T lymphocytes and regulates their production of proinflammatory cytokines.
European Journal of Immunology. 22(7):1789-93, 1992 Jul.

7. Diabetes (1-3) Page 16

Result <1> (Diabetes)
Nellore K. Harris NR.
Department of Bioengineering, Pennsylvania State University, University Park, Pennsylvania, USA.
Inhibition of leukocyte adherence enables venular control of capillary perfusion in streptozotocin-induced diabetic rats.
Microcirculation. 11(8):645-54, 2004 Dec.
Result <2> (Diabetes)
Tamura Y. Adachi H. Osuga J. Ohashi K. Yahagi N. Sekiya M. Okazaki H. Tomita S. Iizuka Y. Shimano H. Nagai R. Kimura S. Tsujimoto M. Ishibashi S.
Department of Metabolic Diseases, Faculty of Medicine, University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo, 113-8655 Japan.
FEEL-1 and FEEL-2 are endocytic receptors for advanced glycation end products.
Journal of Biological Chemistry. 278(15):12613-7, 2003 Apr 11.
Result <3> (Diabetes)
Schnitzer JE. Bravo J.
Department of Medicine and Pathology, University of California-San Diego, School of Medicine, La Jolla 92093-0651.
High affinity binding, endocytosis, and degradation of conformationally modified albumins. Potential role of gp30 and gp18 as novel scavenger receptors.
Journal of Biological Chemistry. 268(10):7562-70, 1993 Apr 5.

8. Anti-virus (1-28) Page 16-20

Result <1> (Anti-virus)
Malhotra R. Ward M. Bright H. Priest R. Foster MR. Hurle M. Blair E. Bird M.

Respiratory and Inflammation CEDD, GlaxoSmithKline Medicines Research Centre, Gunnels Wood Road, Stevenage, Hertfordshire SG1 2NY, UK. rm18326@gsk.com
Isolation and characterisation of potential respiratory syncytial virus receptor(s) on epithelial cells.
Microbes & Infection. 5(2):123-33, 2003 Feb.
Result <2> (Anti-virus)
Lee JB. Hayashi K. Hashimoto M. Nakano T. Hayashi T.
Faculty of Pharmaceutical Sciences, Toyama Medical and Pharmaceutical University, Sugitani, Toyama 930-0194, Japan.
Novel antiviral fucoidan from sporophyll of Undaria pinnatifida (Mekabu).
Chemical & Pharmaceutical Bulletin. 52(9):1091-4, 2004 Sep.
Result <3> (Anti-virus)
Klarzynski O. Descamps V. Plesse B. Yvin JC. Kloareg B. Fritig B.
Institut de Biologie Moleculaire des Plantes du CNRS, 67084 Strasbourg, France. Sulfated fucan oligosaccharides elicit defense responses in tobacco and local and systemic resistance against tobacco mosaic virus.
Molecular Plant-Microbe Interactions. 16(2):115-22, 2003 Feb.
Result <4> (Anti-virus)
Ponce NM. Pujol CA. Damonte EB. Flores ML. Stortz CA.
Departamento de Quimica Organica-CIHIDECAR, Facultad de Ciencias Exactas y Naturales, Univ. Buenos Aires, Pab.2 Ciudad Universitaria, 1428 Buenos Aires, Argentina. Fucoidans from the brown seaweed Adenocystis utricularis: extraction methods, antiviral activity and structural studies.
Carbohydrate Research. 338(2):153-65, 2003 Jan 20.
Result <5> (Anti-virus)
Romanos MT. Andrada-Serpa MJ. Mourao PA. Yoneshigue-Valentin Y. Costa SS. Pereira MS. Miranda MM. Goncalves JL. Wigg MD.
Departamento de Virologia do Instituto de Microbiologia Prof. Paulo de Goes, Universidade Federal do Rio de Janeiro, CCS, Bloco I, Rio de Janeiro, Brazil.
A sulphated fucan from the Laminaria abyssalis inhibits the human T cell lymphotropic virus type 1-induced syncytium formation in HeLa cells.
Antiviral Chemistry & Chemotherapy. 13(4):219-21, 2002 Jul.
Result <6> (Anti-virus)
Wang HX. Ng TB.
Examination of lectins, polysaccharopeptide, polysaccharide, alkaloid, coumarin and trypsin inhibitors for inhibitory activity against human immunodeficiency virus reverse transcriptase and glycohydrolases.
Planta Medica. 67(7):669-72, 2001 Oct.
Result <7> (Anti-virus)

Preeprame S. Hayashi K. Lee JB. Sankawa U. Hayashi T.
Faculty of Pharmaceutical Sciences, Tovama Medical and Pharmaceutical University, Sugitani, Japan.
A novel antivirally active fucan sulfate derived from an edible brown alga, Sargassum horneri.
Chemical & Pharmaceutical Bulletin. 49(4):484-5, 2001 Apr.
Result <8> (Anti-virus)
Schaeffer DJ. Krylov VS.
Department of Veterinary Biosciences, University of Illinois, 2001 South Lincoln Avenue, Urbana, Illinois 61802, USA.
Anti-HIV activity of extracts and compounds from algae and cyanobacteria. [Review] [115 refs]
Ecotoxicology & Environmental Safety. 45(3):208-27, 2000 Mar.
Result <9> (Anti-virus)
Iqbal M. Flick-Smith H. McCauley JW.
Division of Molecular Biology, Institute for Animal Health, Compton Laboratory, Compton, Newbury RG20 7NN, UK.
Interactions of bovine viral diarrhoea virus glycoprotein E(rns) with cell surface glycosaminoglycans.
Journal of General Virology. 81(Pt 2):451-9, 2000 Feb.
Result <10> (Anti-virus)
Feldman SC. Reynaldi S. Stortz CA. Cerezo AS. Damont EB.
Departamento de Quimica Organica-CIHIDECAR, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, Ciudad Universitaria, Argentina.
Antiviral properties of fucoidan fractions from Leathesia difformis.
Phytomedicine. 6(5):335-40, 1999 Nov.
Result <11> (Anti-virus)
Wloch MK. Pasquini S. Ertl HC. Pisetsky DS.
Medical Service, Durham VA Medical Center, NC 27705, USA.
The influence of DNA sequence on the immunostimulatory properties of plasmid DNA vectors.
Human Gene Therapy. 9(10):1439-47, 1998 Jul 1.
Result <12> (Anti-virus)
Hoshino T. Hayashi T. Hayashi K. Hamada J. Lee JB. Sankawa U.
Faculty of Pharmaceutical Sciences, Toyama Medical and Pharmaceutical University, Sugitani, Japan.
An antivirally active sulfated polysaccharide from Sargassum horneri (TURNER) C. AGARDH.
Biological & Pharmaceutical Bulletin. 21(7):730-4, 1998 Jul.
Result <13> (Anti-virus)
Wloch MK. Pasquini S. Ertl HC. Pisetsky DS.

Medical Service, Durham VA Medical Center, NC 27705, USA.
The influence of DNA sequence on the immunostimulatory properties of plasmid DNA vectors.
Human Gene Therapy. 9(10):1439-47, 1998 Jul 1.
Result <14> (Anti-virus)
Zeitlin L. Whaley KJ. Hegarty TA. Moench TR. Cone RA.
Department of Biophysics, Johns Hopkins University, Baltimore, Maryland 21218, USA.
Tests of vaginal microbicides in the mouse genital herpes model.
Contraception. 56(5):329-35, 1997 Nov.
Result <15> (Anti-virus)
Crance JM. Gratier D. Guimet J. Jouan A.
Unite de Virologie, Centre de Recherches du Service de Sante des Armees, La Tronche, France.
Inhibition of sandfly fever Sicilian virus (Phlebovirus) replication in vitro by antiviral compounds.
Research in Virology. 148(5):353-65, 1997 Sep-Oct.
Result <16> (Anti-virus)
Zacharopoulos VR. Phillips DM.
The Population Council, 1230 York Ave, New York, NY 10021, USA.
Cell-mediated HTLV-I infection of a cervix-derived epithelial cell line.
Microbial Pathogenesis. 23 (4):225-33, 1997 Oct.

Result <17> (Anti-virus)
Pearce-Pratt R. Phillips DM.
Population Council, New York, New York 10021, USA.
Sulfated polysaccharides inhibit lymphocyte-to-epithelial transmission of human immunodeficiency virus-1.
Biology of Reproduction. 54(1):173-82, 1996 Jan.
Result <18> (Anti-virus)
Zaretzky FR. Pearce-Pratt R. Phillips DM. Population
Council, New York, New York 10021, USA.
Sulfated polyanions block Chlamydia trachomatis infection of cervix-derived human epithelia.
Infection & Immunity. 63(9):3520-6, 1995 Sep.
Result <19> (Anti-virus)
Su HR. Boackle RJ.
Department of Stomatology, Medical University of South Carolina, Charleston 29425-2230. Heparin mediates binding of S-protein/vitronectin to the envelope glycoprotein of the human immunodeficiency virus and CD4.
International Archives of Allergy & Immunology. 105 (3):238-44, 1994 Nov.

Result <20> (Anti-virus)
Takami M. Sone T. Mizumoto K. Kino K. Tsunoo H.
Division of Biochemical Genetics, Meiji Institute of Health Science, Kanagawa, Japan.
Maleylated human serum albumin inhibits HIV-1 infection in vitro.
Biochimica et Biophysica Acta. 1180(2):180-6, 1992 Dec 10.
Result <21> (Anti-virus)
McClure MO. Moore JP. Blanc DF. Scotting P. Cook GM. Keynes RJ. Weber JN. Davies D. Weiss RA.
Chester Beatty Laboratories, Institute of Cancer Research, London, England.
Investigations into the mechanism by which sulfated polysaccharides inhibit HIV infection in vitro.
AIDS Research & Human Retroviruses. 8(1):19-26, 1992 Jan.
Result <22> (Anti-virus)
Garcia-Villalon D. Gil-Fernandez C.
Centro de Investigaciones Biologicas, Consejo Superior de Investigaciones Cientificas, Madrid, Spain.
Antiviral activity of sulfated polysaccharides against African swine fever virus.
Antiviral Research. 15(2):139-48, 1991 Feb.
Result <23> (Anti-virus)
Andrei G. De Clercq E.
Rega Institute for Medical Research, Katholieke Universiteit Leuven, Belgium.
Inhibitory effect of selected antiviral compounds on arenavirus replication in vitro.
Antiviral Research. 14(4-5):287-99, 1990 Oct-Nov.
Result <24> (Anti-virus)
Parish CR. Low L. Warren HS. Cunningham AL.
Division of Cell Biology, John Curtin School of Medical Research, Australian National University, Canberra.
A polyanion binding site on the CD4 molecule. Proximity to the HIV-gp120 binding region.
Journal of Immunology. 145(4):1188-95, 1990 Aug 15.
Result <25> (Anti-virus)
Venkateswaran PS. Millman I. Blumberg BS.
Interaction of fucoidan from Pelvetia fastigiata with surface antigens of hepatitis B and woodchuck hepatitis viruses.
Planta Medica. 55(3):265-70, 1989 Jun.
Result <26> (Anti-virus)
Baba M. Snoeck R. Pauwels R. de Clercq E.
Rega Institute for Medical Research, Katholieke Universiteit Leuven, Belgium.

Sulfated polysaccharides are potent and selective inhibitors of various enveloped viruses, including herpes simplex virus, cytomegalovirus, vesicular stomatitis virus, and human immunodeficiency virus.
Antimicrobial Agents & Chemotherapy. 32(11):1742-5, 1988 Nov.
Result <27> (Anti-virus)
Baba M. Nakajima M. Schols D. Pauwels R. Balzarini J. De Clercq E.
Department of Human Biology, Rega Institute for Medical Research, University of Leuven, Belgium.
Pentosan polysulfate, a sulfated oligosaccharide, is a potent and selective anti-HIV agent in vitro.
Antiviral Research. 9(6):335-43, 1988 Sep.
Result <28> (Anti-virus)
Mizumoto K. Sugawara I. Ito W. Kodama T. Hayami M. Mori S.
Division of Biochemical Genetics, Meiji Institute of Health Science, Kanagawa, Japan.
Sulfated homopolysaccharides with immunomodulating activities are more potent anti-HTLV-III agents than sulfated heteropolysaccharides.
Japanese Journal of Experimental Medicine. 58 (3):145-51, 1988 Jun.

Clinical Trial Halicobacter Pylori and non-ulcer dyspepsia

Result <1> Clinical data for non-ulcer dyspepsia
Accession Number
CN-00426121
Author
Yamamoto Y, Clinic Y, Suzuki T, Hirano M, Nagaoka M, Hashimoto S, Kimura-Takagi I, Aiyama R, Ueyama S, Yokokura T
Effect of fucoidan-containing tea on non-ulcer dyspepsia.
Japanese Pharmacology & Therapeutics. 30(5):397-400, 2002.
Result <2> Clinical Data for non-ulcer dyspepsia
Accession Number
CN-00424779
Author
Yamamoto Y, Suzuki T, Hirano M, Nagaoka M, Hashimoto S, Shibata H, Kimura-Tagaki I, Aiyama R, Ueyama S, Yokokura T
Effect of fucoidan containing tea on the eradication of H. pylori and non-ulcer dyspepsia.
Japanese Pharmacology & Therapeutics. 28(11):937-942, 2000.

Some clinical studies have been performed with fucoidans to determine their possible value in the prevention or even treatment of certain disease conditions. Nagaoka (2000) (1) described a study in which the symptoms of non-ulcer dyspepsia were relieved over a period of 2 weeks by the oral administration of 1.5-4.5 mg/kg/day of fucoidan.

The other research that demonstrates the excellent inhibitory effects on the adhesion of the ulcer-causing pathogen *H. pylori* to gastric cells In a small clinical study with a fucoidan-rich undaria preparation, GFS™, subjects who took oral fucoidan at a dosage of 2.24 g/day for 10 days experienced inhibition of reactivation and enhanced healing of herpes infections (HSV-1, HSV-2, herpes zoster and Epstein-Barr).[24] In another study, healthy volunteers ingested a more purified undaria fucoidan (3 g per day for 12 days). An increase in the blood stem cell marker CXCR4 was observed (2).This cell receptor is thought to act as a homing receptor that allows stem cells to lodge in organs expressing SDF-1.

1. Nagaoka M, Shibata H, Kimura-Takagi I, et al. Anti-ulcer effects and biological activities of polysaccharides from marine algae. *Biofactors.* 2000;12(1-4):267-274.

2. Irhimeh MR, Lowenthal RM, Ragg S, et al. Fucoidan and CXCR4+ hemopoietic progenitor stem cell population. November 21-24, 2004;p.30

This supplement has been proven useful for many years. These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease