



(12) **United States Patent**
Henderson et al.

(10) **Patent No.: US 6,255,295 B1**
(45) **Date of Patent: *Jul. 3, 2001**

(54) **AMINOSUGAR, GLYCOSAMINOGLYCAN OR GLYCOSAMINOGLYCAN-LIKE COMPOUNDS, AND S-ADENOSYLMETHIONINE COMPOSITION FOR THE PROTECTION, TREATMENT, REPAIR, AND REDUCTION OF INFLAMMATION OF CONNECTIVE TISSUE**

FOREIGN PATENT DOCUMENTS

2609397 7/1988 (FR) A61K/31/70
WO 92/15614 9/1972 (WO) .
WO 88/07060 * 9/1988 (WO) .

OTHER PUBLICATIONS

“S-Adenosylmethionine”; *Arthritis Network*: Third Edition, Aug. 1998, 9–10.

Bassleer C., Henrotin Y., Franchimont, P., “In-Vitro Evaluation of Drugs Proposed as Chondroprotective Agents”, *International Journal of Tissue Reactions*, 14[5](1992) 231–241.

(List continued on next page.)

(75) Inventors: **Robert W. Henderson**, Baldwin; **Todd Henderson**, Bel Air; **Tarek Hammad**, Baltimore, all of MD (US)

(73) Assignee: **Nutramax Laboratories, Inc.**, Baltimore, MD (US)

(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

Primary Examiner—Gary Geist
Assistant Examiner—Everett White
(74) *Attorney, Agent, or Firm*—Covington & Burling

(57) **ABSTRACT**

A composition for the protection, treatment and repair and for reducing the inflammation of connective tissue in mammals and a method for the protection, treatment of connective tissue in mammals by the administration of the composition. The composition includes at least two compounds selected from S-Adenosylmethionine (SAM), an aminosugar selected from the group consisting of glucosamine, glucosamine salts, glucosamine hydrochloride, galactosamine, N-acetylglucosamine, and fragments, mixtures or salts thereof, and a glycosaminoglycan or glycosaminoglycan-like compound selected from the group consisting of chondroitin, chondroitin salts, hyaluronic acid, glucuronic acid, iduronic acid, keratan sulfate, keratin sulfate, heparan sulfate, dermatin sulfate, PPS, sodium PPS, calcium PPS, oversulfated GAGs, and fragments, salts, and mixtures thereof. The composition optionally includes manganese which promotes the production of connective tissue matrix. The composition also optionally includes methyl donors or methyl donor cofactors, such as vitamin B₁₂, vitamin B₆, folic acid, dimethylglycine or trimethylglycine, and betaine.

(21) Appl. No.: **08/845,852**

(22) Filed: **Apr. 28, 1997**

Related U.S. Application Data

(63) Continuation-in-part of application No. 08/797,294, filed on Feb. 7, 1997, which is a continuation-in-part of application No. 08/779,996, filed on Dec. 23, 1996.

(51) **Int. Cl.**⁷ **A61K 31/715**; A61K 31/70

(52) **U.S. Cl.** **514/54**; 514/62

(58) **Field of Search** 514/54, 62

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,232,836 2/1966 Carlozzi et al. 167/65
3,371,012 2/1968 Furuhashi 167/59

(List continued on next page.)

10 Claims, 3 Drawing Sheets

