PATENTS

Antimicrobials

Recent patents related to new antimicrobial materials and methods of imparting antimicrobial activity to an article or product.

Patent number	Description	Assignee	Inventor	Date
US 10,584,191	A star polymer with light-activated enhanced antimicrobial functionality that can comprise a plurality of non-degradable copolymer arms comprising respective first ends and respective second ends. The respective first ends can be crosslinked to form a vinyl polymer core and the respective second ends can have antimicrobial functionality. Further, the polymer can comprise a singlet oxygen generator loaded within the vinyl polymer core. The singlet oxygen generator can generate a singlet oxygen species in response to light.	International Business Machines (Armonk, NY, USA)	Bakar MB, Hedrick JL, Piunova VA, Tek AT	3/10/2020
US 10,583,154	Non-mercurial preservatives, including antimicrobial polyamide polymers and octenidine, and methods of use thereof to produce preservative-containing multi-dose formulations. The preservative-containing multi-dose formulations exhibit resistance to one or more contaminating microorganisms and have advantageous properties with respect to long term stability of biological and small molecule active ingredients.	Boehringer Ingelheim Animal Health USA (Duluth, GA, USA), Genzyme (Cambridge, MA, USA)	Rigaut G, Loss-Dunod C, Parisot AGAL, Dhal PK	3/10/2020
US 10,582,711	A method for imparting to an article or product antimicrobial activity, including a step of applying an antimicrobial agent containing an antimicrobial polyaminosilane to the article or product. The antimicrobial polyaminosilane is prepared by subjecting an aminosilane monomer to a hydrolysis and condensation reaction. The antimicrobial polyaminosilane thus prepared is free of halide ions.	Leader Optronics Technology Co. (Tainan, Taiwan)	Huang Yu-H, Su S-H	3/10/2020
US 10,582,707	Extracts from <i>Persea</i> sp. (avocado) enriched in bioactive compounds that can be used as antimicrobial, antibacterial or spore-germination-inhibiting agents, the process for obtaining the extracts, acetogenins and isolated molecules, and methods for using the extracts enriched in bioactive compounds for providing antimicrobial, antibacterial or spore-germination-inhibiting effect.	Monterrey Institute of Technology and Higher Education (Monterrey, Mexico)	Hernandez-Brenes C, Garcia-Cruz MI, Gutierrez-Urbe JA, Benavides-Lozano JA, Rodriguez-Sanchez DG	3/10/2020
US 10,577,638	Systems, devices, products and methods for detecting and identifying microbial organisms in a sample, as well as testing antimicrobial susceptibility of microbial organisms.	Board of Regents, The University of Texas System (Austin, TX, USA)	Srinivasan A, Ramasubramanian AK, Lopez-Ribot JL, Frei CR	3/3/2020
US 10,577,395	Total synthesis and evaluation of key analogs of vancomycin containing single-atom changes in the binding pocket, as well as their peripherally modified, <i>N</i> -(hydrophobe-substituted) derivatives exemplified by a <i>N</i> -4-(4'-chlorobiphenyl)-methyl derivative and their pharmaceutically acceptable salts. Their evaluation indicates the combined pocket and peripherally modified analogs exhibit a spectrum of antimicrobial activity and potencies against both vancomycin-sensitive and vancomycin-resistant bacteria, and likely benefit from two independent and synergistic mechanisms of action.	The Scripps Research Institute (La Jolla, CA, USA)	Boger DL	3/3/2020
US 10,577,247	A hybrid nanomaterial consisting of graphene oxide nanomaterial covalently conjugated to cationic quaternized chitosan, a method of preparing the hybrid nanomaterial, an antimicrobial composition containing the hybrid nanomaterial, and use of the antimicrobial composition in inhibiting growth of microorganisms in an environment.	Nanyang Technological University (Singapore)	Chan BEM, Li P	3/3/2020
US 10,576,186	An antimicrobial medical device that includes a substrate having a metal surface that is made from a metal or metal alloy that may include stainless steel, cobalt and titanium. Disposed on the metal surface is a first antimicrobial oxide layer that includes an antimicrobial metal that may include silver, copper, zinc and combinations thereof. The atoms of antimicrobial metal in the first antimicrobial oxide layer are of a first concentration. The first antimicrobial oxide layer is positioned in a direction opposite that of the metal surface. The device further includes a second antimicrobial oxide layer that includes an antimicrobial metal that may be silver, copper, zinc and combinations thereof. The atoms of the antimicrobial metal present in the second antimicrobial oxide layer are of a second concentration. The first concentration and the second concentration are not equal.	Nanovis (Columbia City, IN, USA)	Hedrick M, Yao C	3/3/2020

Source: United States Patent and Trademark Office (<http://www.uspto.gov>).

Published online: 7 April 2020

<https://doi.org/10.1038/s41587-020-0488-1>