UNIVERSITY OF ALBERTA
TECHNOLOGY TRANSFER SERVICES

ANTIMICROBIAL COATING FOR FACE MASKS AND SELF-SANITIZING SURFACES
ID# 2022012

HIGHLIGHTS

- Universal virus/bacteria negation coating efficiently inactivates transmissible viral/bacterial aerosols/droplets.
- Potential to improve safety and reusability of current face masks.

OPPORTUNITY

University of Alberta researchers have developed a lignin based, photopolymerizable, antimicrobial coating and demonstrated its antiviral and antibacterial performance. Facemask fabrics or other materials can be spray coated or dipped into the formulation, followed by rapid UV cross-linking. This process creates a permanent antimicrobial coating on the surface of polypropylene fibers, resulting in masks suitable for long-term use and/or reuse with reduced chance of contact transmission of bacteria and viruses. Comparison with previous reports confirms rapid and efficient pathogen inactivation, irrespective of their modes of transmission (aerosol or droplet). Flexibility in the coating formulation allows for the development of application-specific, hydrophilic/hydrophobic filters for multifunctional facemasks, isolation gowns, apparel, and other surfaces.

COMPETITIVE ADVANTAGE

- Demonstrated antiviral and antibacterial performance against viruses and bacteria in a type/strain-nonspecific manner:
  - ✓ Influenza virus (A/PR8/34 H1N1), human coronaviruses (HCoV-229E, HCoV-OC43), and bacteria (K. pneumonia) have been tested.
- Can be dipped or spray coated on the surface of facemask fabrics and other surfaces.
- Forms permanent, antimicrobial coatings.
- Can control hydrophilicity (or hydrophobicity) of the coating.
- May eliminate concerns over long-term mask use and mask reuse.

STATUS

- Patent pending, Application No US18/306,615
- Nano Letters 2021 21 (12), 5422-5429 DOI: 10.1021/acs.nanolett.1c00525

INVENTORS

- Dr. Hyo-Jick Choi and his team.

MORE INFORMATION

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