



# Stop AMR Global Media Monitor

18 – 24 January 2020

## New method to enable the production of cheaper, longer-lasting vaccines

Currently vaccines must be refrigerated during transport and storage with shelf lives as little as a few months, which creates a problem in low-income and remote areas where electricity can be hard to come by. Luis Vaca, from Universidad Nacional Autonoma de Mexico, writes “We have developed a novel technology to produce vaccines which require no refrigeration and have a shelf life of many years. These vaccines could be transported to regions of the world without electricity and refrigeration.”

A team of researchers including Vaca adapted a strategy used by insect viruses to survive outside of a host for long period of time. This strategy uses polyhedrin, a protein that forms crystals around the virus to protect it from the environment. They found that the first 110 amino acids, PH(1-110), maintain this ability to form crystals even when other proteins are attached. The researchers combined PH(1-110) with the green fluorescent protein (GFP) which generated a weak immune response, and injected it into mice to study their immune response. Their results showed that anti-GFP antibodies stayed in the blood of the mice after 24 weeks, indicating a lasting immune response.

Source: [EurekAlert!](#) 21 January 2020

## Drug resistance on the rise despite pharma companies move to curb overselling antibiotics

According to a new report by the Access to Medicine Foundation there are only 51 candidates in late-stage clinical development of drugs that treat priority bacterial and fungal infections. However, pharma companies are making progress on stewardship programmes to slow the development of resistance in current drugs, preventing wastewater contamination, and data sharing.

Since 2018 two companies, Novartis and Sanofi, have halted antibiotics R&D while Achaogen and Melinta filed for bankruptcy. Financial support for R&D has attracted some smaller biotech companies, however the lack of sustained funding has prevented promising medicines from advancing beyond early stage research.

Source: [Science Business](#), 21 January 2020

## Antiviral compound offers hope against deadly flu

A new study published in the Proceedings of the National Academy of Sciences indicated that an engineered compound based on a banana lectin protein, H84T, has the potential for clinical use against influenza. In the experiment, 80% of mice exposed to a typically fatal influenza were able to survive after being injected with H84T. The researchers found that the mice developed antibodies against H84T, however they did not appear to be negatively affected by this.

The compound targets a sugar called high mannose which is seen on the outside of certain viruses, but not on most healthy cells. H84T blocks influenza viruses from joining with endosomes and thus disables their ability to replicate. David Markovitz, M.D., professor of internal medicine in the division of infectious diseases at Michigan Medicine, says “there may be a synergistic effect between H84T and Tamiflu.”

Source: [EurekAlert!](#) 21 January 2020

## Novel composite antimicrobial film could take a bite out of foodborne illnesses

Researchers at Penn State's College of Agricultural Sciences believe a new composite film created by

bonding an antimicrobial layer to and polyethylene plastic could help limit foodborne illness outbreaks. The antimicrobial lining is made of a pullulan-based biopolymer from starch syrup during a fermentation process that is already approved for use in foods; researchers infused the pullulan with Lauric arginate. This film slows the release of the antimicrobial and disperses it at a predictable rate to continuously kill bacteria. Without the film, the antimicrobial would quickly run off the food's surface or evaporate, drastically reducing its efficacy.

Lauric arginate was chosen due to its broad-spectrum efficacy in killing and limiting the growth of foodborne illness causing pathogens as well as its nontoxicity. Abdelrahim Hassan, an associate professor of food safety and technology at Beni-Suef University in Egypt, is credited with devising the solution for attaching the pullulan to polyethylene which typically repels everything.

To test their film, researchers inoculated raw and ready to eat meats with Shiga toxin-producing *E. coli*, *Salmonella* spp., *Listeria monocytogenes* and *Staphylococcus aureus* then packaged the meats with the film for up to 28 days. Their findings, published in the *International Journal of Food Microbiology*, demonstrate the composite antimicrobial film significantly reduced foodborne pathogens.

Source: [EurekaAlert!](#) 21 January 2020

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### **WHO calls antibiotic pipeline insufficient**

Two reports have been published by the World Health Organization (WHO) highlighting the current crisis antibiotic development is facing. As per these reports, the majority of antibiotics currently in development offer little improvements over current ones and innovative ones or ones that target highly resistant pathogens are a minority. Despite a significant improvement in early-stage development, many of these potential drugs will never go through all clinical trials due to the unattractiveness of the market for the pharmaceutical industry. Indeed, the big industries are going bankrupt and abandoning this sector, which has left SMEs to pick up the slack. However, they often do not have the required resources.

As such, WHO director general, Tedros Adhanam Ghebreyesus stated in a WHO press release that "Never has the threat of antimicrobial resistance been more immediate and the need for solutions more urgent," and that "Numerous initiatives are underway to reduce resistance, but we also need countries and the pharmaceutical industry to step up and contribute with sustainable funding and innovative new medicines."

Facts:

- Since 2017, only two new antibiotics (vaborbactam + meropenem / lefamulin) have been deemed innovative by the WHO, with the rest being simple derivatives of approved ones where resistance has already developed
- No new drug has been approved for carbapenem-resistant *Acinetobacter baumannii* or *Pseudomonas aeruginosa* are two pathogens that have been deemed as highest-priority multi-drug resistant (MDR)

Source: [EurekaAlert!](#) 23 January 2020

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### **New experimental vaccine for African swine fever virus shows promise**

African swine fever, through the ASFV-G strain, is currently wreaking havoc in the swine industry throughout eastern Europe and Asia, most notably in China, and there is currently still no vaccine commercially available. The pathogen is very contagious and often lethal, as such the main method to deal with outbreaks has been "by animal quarantine and slaughter."

In order to develop a vaccine, there is a need to attenuate the virus and decrease its effects and virulence. During the development process, the researchers observed that when basing themselves on old African swine fever virus strains and deleting the same genes, ASFV-G maintained its virulence. "it became clear that ASFV-G was much more virulent" said Dr. Gladue the principal investigator of the study. The team therefore used the computational pipeline predictive methodology, which pointed to the I177I protein. Its deletion indeed led to an attenuated virus. Now, the team is working on meeting the regulatory requirements for commercialization.



As per Dr. Gladue, "This new experimental ASFV vaccine shows promise, and offers complete protection against the current strain currently producing outbreaks throughout Eastern Europe and Asia."

Source: [EurekAlert!](#) 23 January 2020