

Question... What's the story on the new anti-viral pills? Do they work and are they safe?

Answer... Like so many innovations during the course of this pandemic, the answer is that we don't yet know for sure. Most of the information available to the general public is being reported through the popular press. Here's what I know from the few scientific articles I can find.

Two new drugs have been in clinical trials and may soon be available to the public, perhaps on an "emergency use authorization" basis like the vaccines were for many months.

Molnupiravir was developed by Merck and first approved in the UK. The research trials indicate that it can cut in half the risk of being hospitalized due to COVID-19 infection.

Paxlovid, developed by Pfizer, reduced the risk of hospitalization by 89%. Pfizer stopped enrolling people in its clinical trials, because it felt the evidence was strong enough to go ahead and seek approval of paxlovid by the FDA. As of today (11/15/21), I can't find any indication that either drug has yet been approved for use in the US.

If these medications are found to be safe and effective, they could, **together with vaccination**, be 'game changers' in our attempts to control the pandemic. Apparently, they can be manufactured relatively inexpensively. However, this does *NOT* mean they will be sold at a low price, at least not in the US. Here, federal law prevents Medicare from negotiating drug prices with pharmaceutical companies.

"Molnupiravir acts by introducing mutations into the viral genome during viral replication. A metabolite of the drug is picked up by a viral enzyme called RNA-dependent RNA polymerase and incorporated into the viral genome, eventually causing so many errors that the virus can no longer survive.

Human cells have a DNA, rather than an RNA, genome, but some laboratory experiments have suggested that *molnupiravir* could cause mutations in human DNA as well," according to an article in the *Journal of Infectious Disease*. Complicated, right?

Paxlovid acts by inhibiting an enzyme that's needed to process some viral proteins into their final, functional form. But the drug is a combination of an antiviral and another drug, called *ritonavir*. This drug helps to prevent enzymes in the liver from breaking down the antiviral before it has a chance to disable the coronavirus. Ritonavir is a component of some HIV treatment cocktails and can affect how some other medications are broken down by the body. So, a wide range of drugs probably should not be used with it, including some that are commonly used to treat heart conditions, suppress the immune system, and reduce pain.

So, as you can see, these drugs involve the body's DNA and RNA, a fact that caused many people to be wary of the vaccines. As far as we know, the early research indicates that the

drugs are as safe as other anti-viral drugs, but they will certainly have some risk and cause some side effects. All medications do.

Will they work against all the variants? We don't know yet. When used alone as single-drug therapy will they possibly lead to drug resistance, which is a lack of effectiveness caused by changes in the virus so the drugs no longer work? (This happens when a single drug is used for treatment of tuberculosis and HIV.) Again, we don't know yet.

The details of the research have not been made widely available. The drugs have not yet been tested on many millions of people, as they will be when put into widespread use. This is true of any medication or vaccine approved for general use by the public.

As a result of the way these medications work and all the unknowns, many of those who are so concerned about the vaccine are also likely to be concerned about these pills. However, if the pills are safe and effective, and if they are used together with the vaccine, we might see the end of the pandemic or at least its movement toward being much less serious. Time will tell.



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Addendum from the Diocese of Davenport:

Q: Was the HEK293 cell line, or other cell lines or cells originally derived from (aborted) human fetuses, used in research to develop or test these drugs?

A: Yes. Such cells or cell lines was used in research leading to the development of Molnupiravir, as well as Remdesivir and Paxlovid.

Molnupiravir research has included the use of HEK293 cells as well as the use of human lung-only mice, which are created using human fetal lung and thymus tissue obtained from aborted fetuses.

Paxlovid research has include the use of the MRC-5 cell line, fibroblasts originally derived from an aborted human fetus in 1966.