Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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MULTIPLE “buyers clubs” are trying to import the drug ivermectin to the UK to prevent and treat covid-19, even though there is no evidence supporting use of the drug in this way, and it could even be dangerous.

The UK Medicines and Health products Regulatory Authority (MHRA) has cautioned people not to try to buy ivermectin through third parties to treat covid-19. The drug is used to treat parasite infections in humans and some other animals, but has gained a lot of attention as an unproven drug for preventing or treating covid-19.

“Ivermectin is not a licensed medicine for covid-19. It can only be taken by those participating in closely supervised and highly regulated clinical trials,” an MHRA spokesperson told New Scientist. “Never self-prescribe or try to obtain medicines from an unregulated source – only take medicines prescribed by your doctor and obtained via a registered pharmacy or reputable outlet.”

Highly concentrated

In the US, supplies of the human and livestock forms of ivermectin have run short after some people opposed to covid-19 vaccines sought to use it to treat or prevent infection. But according to the US Food and Drug Administration (FDA), current evidence doesn’t show that ivermectin is effective against covid-19 – although clinical trials are ongoing.

“Taking large doses of ivermectin is dangerous,” the FDA says on its website. The FDA also warns that formulations of ivermectin for animals are often highly concentrated and may contain inactive ingredients that haven’t been evaluated for use in people. Poison control centres in the US are struggling with a surge of ivermectin-related cases, and health officials in New Mexico recently reported that two people died from ivermectin toxicity after taking the drug.

Throughout the pandemic, a number of drugs have attracted attention as possible preventatives or treatments for covid-19. Like the anti-malarial drug hydroxychloroquine before it, ivermectin is being used by some people with covid-19 to try to halt the onset of symptoms, and by some people who are against vaccines as a preventative measure. Trials of hydroxychloroquine haven’t found evidence of any benefits of using it for covid-19.

The desire of some to source ivermectin isn’t limited to the US. A crowd-funded campaign in the UK called the Ivermectin Approval Club has raised more than £40,000 in a bid to gain MHRA approval for the use of ivermectin to treat covid-19.

If approved, the group says it would then plan to source ivermectin formulated for human use from a Bulgarian company and distribute it among members.

“We’ve hired regulatory consultants to submit the application for us,” says Tess Lawrie of the Ivermectin Approval Club, run by UK non-profit organisation EbMCsquared.

“It’s a very slow process.”

Lawrie believes ivermectin is a safe and effective treatment for covid-19 that can reduce the risk of people dying from the disease, and wants people to have the chance to use it – perhaps as a prophylactic for those at high risk.

But others are trying to source ivermectin without seeking regulatory approval. New Scientist has seen messages shared in a group on the encrypted chat app Telegram that calls itself the Ivermectin Buyers Club. The chat group isn’t connected to the group seeking MHRA approval. It has around 1300 members, and the group’s administrator has offered to supply ivermectin to buyers around the world for £3 a tablet.

The seller, who goes by the pseudonym Ron Woodroof – a reference to the creator of the Dallas Buyers Club, which purchased AIDS treatments in the 1980s – offered to send the tablets to me when I posed as someone interested in purchasing ivermectin.

In both a private chat and in the public group, Woodroof claimed to source ivermectin for covid-19 isn’t limited to the US. A crowd-funded campaign in the UK called the Ivermectin Approval Club has raised more than £40,000 in a bid to gain MHRA approval for the use of ivermectin to treat covid-19.

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In both a private chat and in the public group, Woodroof claimed to source the drug from a pharmacist in India and import it to the UK. Prospective clients seeking a supply of ivermectin in
the Telegram group purport
to come from all over the world.
Woodroof has shared evidence
in the group of multiple deliveries
to customers.
Woodroof told me he was
selling “high grade human
ivermectin” that is shipped from
the UK. The seller reassured me
that “more [ivermectin is] coming
at all times so I wouldn’t stress”.

Payments in bitcoin
An MHRA spokesperson told
New Scientist that importing
ivermectin into the UK for
anything other than personal use
is illegal and would constitute a
criminal offence. “Anyone in the
UK who imports a medicine for
personal use, must not sell on,
or supply imported medicines to
others,” said the spokesperson.
In recent weeks, Woodroof has
moved to accepting payment for
the pills only through the
encrypted and difficult-to-track
cryptocurrency bitcoin. However,
al transactions associated with
a given bitcoin wallet are stored
permanently on the blockchain,
an unalterable ledger. The
wallet that Woodroof asked me
to send money to has received
US$3863 (or 0.09 bitcoin) since
the start of September. In all,
42 transactions have been
associated with the wallet.
Woodroof stopped responding
to me when I identified myself as
a reporter. Before that, he deleted
the messages we exchanged.
While unproven drugs aren’t
a credible alternative to vaccines,
there have been some legitimate
successes in repurposing existing
drugs for treating covid-19. The
antiviral drug remdesivir has
been approved for this purpose
by the FDA, as has baricitinib,
a rheumatoid arthritis drug,
for people on ventilators.

Computing
Quantum computers can
now fix their own mistakes
Matthew Sparkes

QUANTUM computers aren’t yet
reliable enough for mainstream
use, in part because the error
rates of their calculations
are too high. That could soon
change, because for the first
time, a quantum computer has
demonstrated an error-correction
strategy that fixes more errors
than it creates. This may provide
a practical way to scale up to a
machine capable of carrying out
genuinely useful computations.

Ordinary computers store
data as either a 0 or 1, but
errors can cause the bit to “flip”
to the wrong value, which is why
error-correction is a standard
feature of modern processors.
In quantum computing, the
problem is more complex because
each quantum bit, or qubit, exists
in a mixed state of 0 and 1, and
any attempt to measure them
directly destroys the data.

Several research teams are
working on the problem of
quantum error correction but
there is a long way still to go.
Google announced in July that
its Sycamore processor was able
to detect and fix computational
errors, but the additional
hardware needed to do that
introduced more errors than
it was able to fix.

Christopher Monroe at the
Joint Quantum Institute (JQI)
in Maryland and his colleagues
have now passed this crucial
threshold. The team was able
to set the state of a logical
qubit – a group of 13 qubits
clustered together to more
reliably hold a single piece of
data – and then measure it
again 99.4 per cent of the time,
despite relying on six individual
operations that have only
98.9 per cent reliability.

Without error correction,
the reliability would be expected
to slip down to 93.6 per cent
after all six operations (Nature,
doi.org/gzcn).

Unlike the groups at Google
and the University of Science
and Technology of China
(USTC), which have made big
strides in recent months with
superconducting qubits, the JQI
group uses trapped-ion qubits.
The machine uses up to 32
individual charged atoms that
are manipulated with lasers.

The inherently higher stability
of trapped ions allowed the
team to use an error-correction
strategy called a Bacon-Shor
code, which superconducting
qubits aren’t currently high
enough quality to use.

Monroe, who is also founder
of quantum computing firm IonQ,
which floated on the New York
Stock Exchange last week, says
that error correction is the key to
creating practical computers, not
simply making more and more
qubits. Anyone creating dozens of
qubits while having a high error
rate is “spinning their wheels”,
he says, claiming that trapped-
ion technology is on a steep
upwards slope with only
engineering hurdles ahead of
it, while superconducting qubits
are on a flat trajectory with
large scientific breakthroughs
needed to progress.

Despite this, the only claims of
quantum supremacy so far have
both included superconducting
qubits, and the number of qubits
used in them has been rising
steadily over the past year.
Monroe concedes, however,
that his team was only able to
demonstrate error-correction
on a single logical qubit, and that
the next challenge is to scale up
to two or more. “We need to think
higher now,” he says.

Peter Knight at Imperial
College London agrees that the
trapped-ion approach does
have some advantages over
the superconducting plan being
followed by Google and USTC.
Ions in a trapped-ion computer
are physically identical, whereas
superconducting qubits can vary,
he says. “With superconducting
qubits there’s a lot of surface
noise. With each qubit you have
to do a lot of tuning to make it as
identical as you can to another,
whereas nature gives you
identical trapped ions.”