Molecular Biotechnology

Bachelor Program

Faculty of Science

Helwan University

Awareness Booklet

Corona virus (COVID-19)

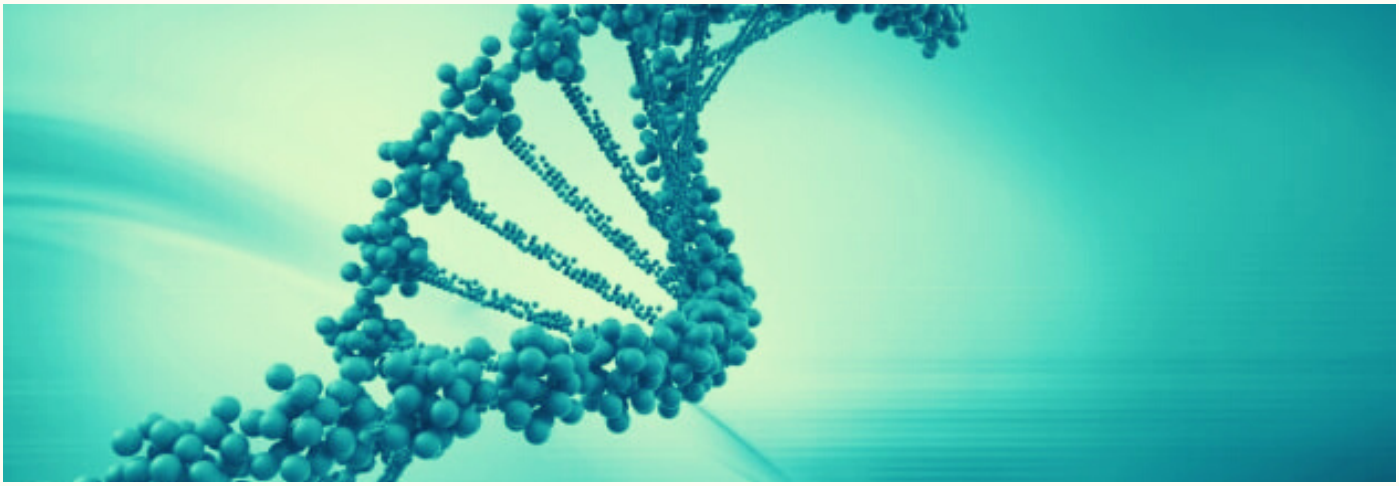
Email: Biotech.bsc@science.helwan.edu.eg

2019-2020

Molecular Biotechnology Program

Bachelor of Science

Credit Hours System



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Molecular Biotechnology Program

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4th Year Molecular Biotechnology Program

Under supervision of

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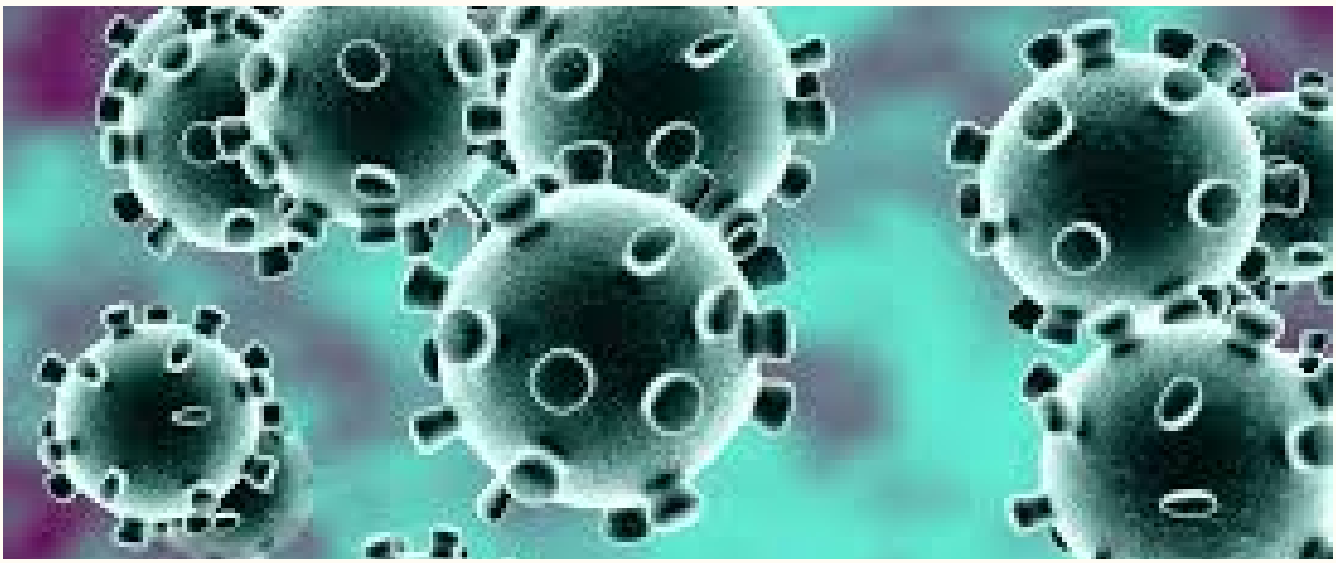
OBJECTIVES OF THE MOLECULAR BIOTECHNOLOGY PROGRAM

The primary objectives of the molecular biotechnology program are to broadly educate students for positions in the rapidly developing biotechnology industry and to prepare students for graduate and graduate/professional study in the life sciences.

This program was developed in response to a need,based on the large number of biotechnology, agricultural and pharmaceutical fields to keep up with massive non stopping global progress in such fields, for production of personnel with expertise in all phases of biotechnology, where progress in such biotechnology fields will affirmatively be positively reflected on the prosperity of the Egyptian national economy.

The molecular biotechnology program curriculum is designed to provide students with fundamental knowledge and laboratory skills in biotechnology, including molecular biology, genetics, plant tissue culture, animal cell culture, DNA analysis techniques, protein isolation , recombinant DNA techniques.,and a firm foundation in biology and the physical sciences. The strong life and physical sciences foundation of the curriculum involves extensive laboratory and course work and research experience, as well as specializations in the following fields: animal biotechnology, microbial biotechnology, plant biotechnology.

CORONA VIRUS (COVID-19)



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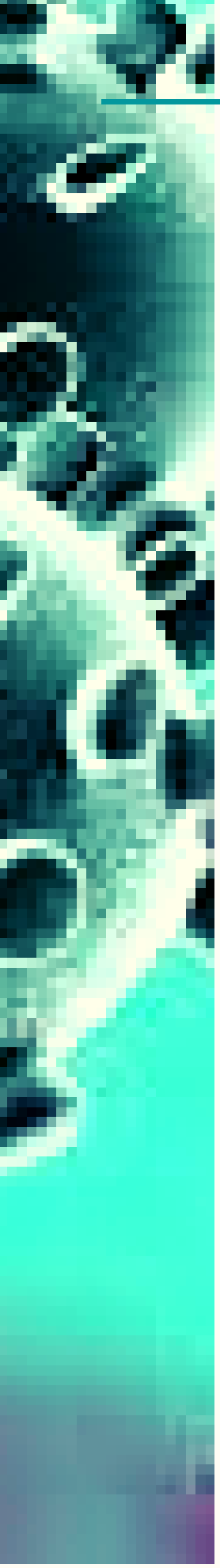
INTRODUCTION

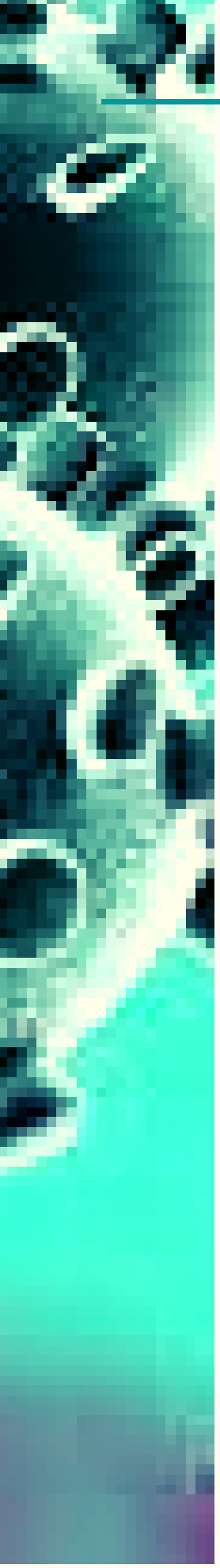
Molecular biotechnology program

Stay aware of the latest information on the COVID-19 outbreak, available on the WHO website(https://www.who.int/emergencies/diseases/novel-coronavirus-2019) and through your national and local public health authority.

Corona viruses are a large family of viruses that usually cause mild to moderate upper-respiratory tract illnesses, like the common cold, in people. However,
three times in the 21st century corona virus outbreaks have emerged from animal reservoirs to cause severe disease and global transmission concerns.

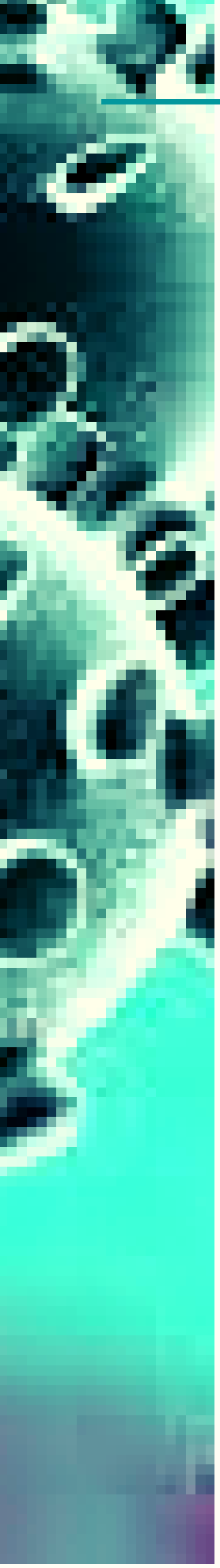


There are hundreds of coronaviruses, most of which circulate among animals including pigs, camels, bats and cats. Sometimes those viruses jump to humans—called a spillover event—and can cause disease. Seven coronaviruses are known to cause human disease, four of which are mild: viruses 229E, OC43, NL63 and HKU1. Three of the coronaviruses can have more serious outcomes in people, and those diseases are SARS (severe acute respiratory syndrome) which emerged in late 2002 and disappeared by 2004; MERS (Middle East respiratory syndrome), which emerged in 2012 and remains in circulation incamels; and COVID-19, which emerged in December 2019 from China and a global effort is under way to contain its spread. COVID-19 is caused by the coronavirus known as SARS-CoV-2.



Severe acute respiratory syndrome coronavirus (SARS-CoV)
is the strain of virus that causes severe acute respiratory syndrome (SARS). It is an enveloped, positive-sense, single-stranded RNA virus which infects the epithelial cells within the lungs. The virus enters the host cell by binding to the ACE2 receptor. Firstly it found in bats then transferred into palm civets finally infected humans. An epidemic of SARS started in china and affected 26 countries and resulted in more than 8000 cases in 2003.

Middle East Respiratory Syndrome (MERS)
is an illness caused by a virus (more specifically, a corona virus) called Middle East Respiratory Syndrome Coronavirus (MERS-CoV). Most MERS patients developed severe respiratory illness with symptoms of fever, cough and shortness of breath. About 3 or 4 out of every 10 patients reported with MERS have died.
Firstly it also found in bats then transferred into camels finally infected humans when they were in close contact with these camels using their milks or meats.



31 DEC 2019:

China has alerted the World Health Organization (WHO) of several flu-like cases in Wuhan, the capital of Central China's Hubei province with 11 million population. Patients have been quarantined and health authorities commenced work on tracing the source of the flu.

1 JAN 2020:

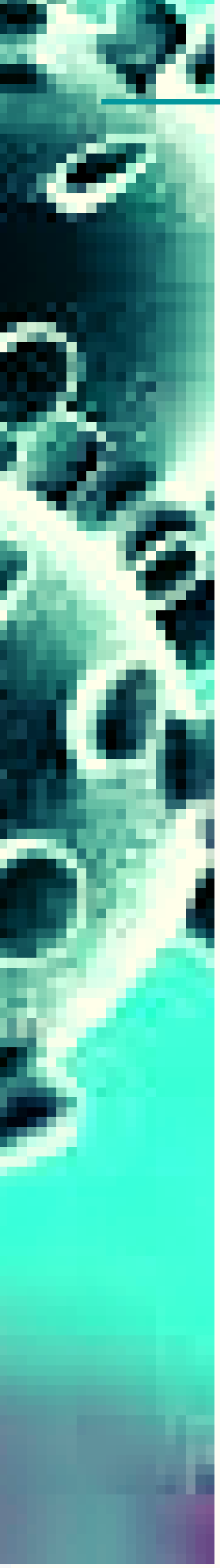
The US Centers for Disease Control and Prevention has identified a seafood market in Wuhan as the suspected hub of the outbreak and the market remained closed since then. Studies began on those several flu-like cases in wuhan.

7 JAN:

Chinese authorities have identified that these symptoms are back to the virus, called Coronavirus, which is a family of viruses including the common cold, SARS and MERS. Temporarily, this new virus is named as 2019-nCoV.

9 JAN: Coronavirus

genome sequence released: Chinese Center for Disease Control and Prevention (CDC) has reported that 2019-nCoV is the agent and made the genome sequence available to the world. The new virus is associated to the SARS-CoV group.



Disease name

corona virus disease (COVID-19)

Virus name

severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)

Transmission :

COVID-19 is spread by person-to-person contact and by coming into contact with contaminated objects and surfaces, according to the United States Centers for Disease Control.

Person-to-person contact involves respiratory droplets produced when an infected person coughs or sneezes. The droplets can land in the mouths or noses of people who are nearby, about 6 feet, or possibly be inhaled into the lungs, the CDC said. While people are generally most contagious when they are showing symptoms, some spread might be possible before that. The CDC has found that infected people produce a large quantity of the virus at the beginning of the infection with an incubation period of about 5.1 days. The fact that symptoms do not appear immediatelyafter infection means people can function normally and continue daily life as normal before even realizing they are sick.

Symptoms:

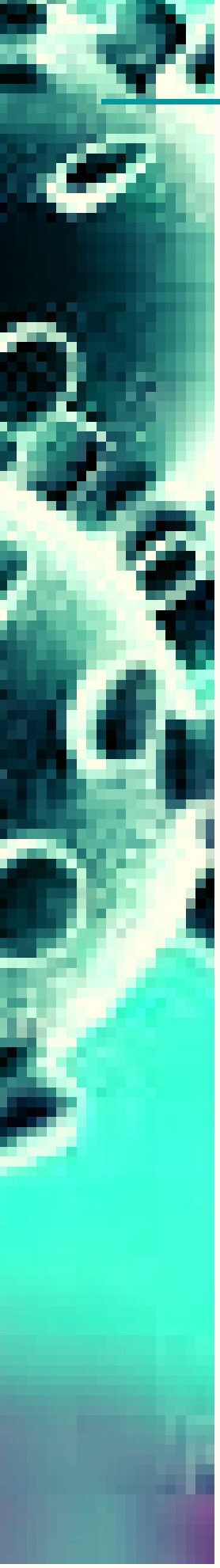
Reported illnesses have ranged from mild symptoms to severe illness and death for confirmed coronavirus disease 2019 (COVID-19) cases.These symptoms may appear 2-14 days after exposure (based on the incubation period of MERS-CoV viruses).

1- Fever

2- Cough

3- Shortness of breath

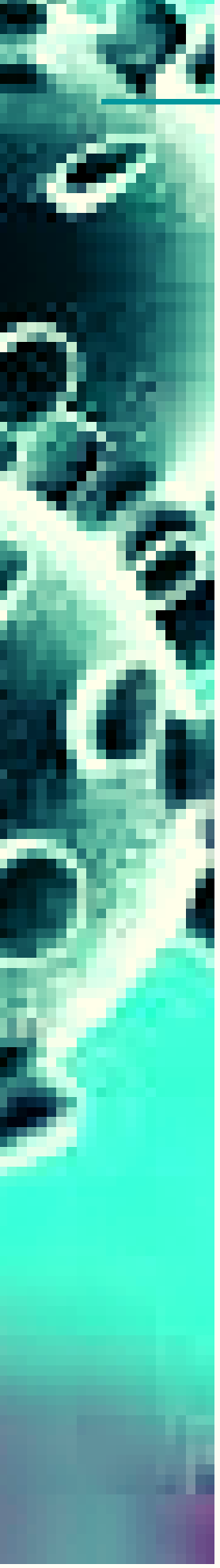
If you develop emergency
warning signs for COVID-19 get medical attention immediately.
Emergency warning signs include:
1- Trouble breathing
2- Persistent pain or
pressure in the chest
3- New confusion or
inability to arouse
4- Bluish lips or face
- This list is not
all inclusive. Please consult your medical provider for any other symptoms that
are severe or concerning.



How to Protect Yourself & Others:

1- Clean your hands: often at least 20 seconds especially after you have been in a public place, or after blowing your nose, coughing, or sneezing.
If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. Cover all surfaces of your hands and rub them together until they feel dry.
Avoid touching your eyes, nose, and mouth with unwashed hands.
2- Avoid close contact: Put distance between yourself and other people.

3- Stay home if you're sick



4- Cover coughs and sneezes:

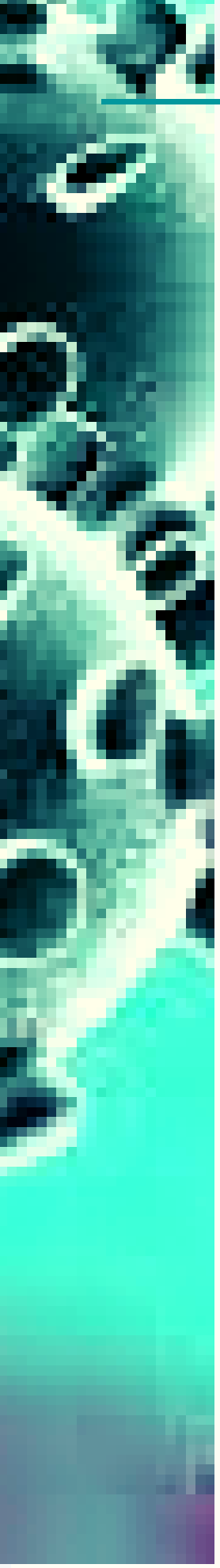
Cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow.
Throw used tissues in the trash.
Immediately wash your hands with soap and water for at least 20 seconds. If soap and water are not readily available, clean your hands with a hand sanitizer that contains at least 60% alcohol.

5- Clean and disinfect Clean AND disinfect frequently touched surfaces daily. This includes tables, doorknobs, light
switches, counter tops, handles, desks, phones, keyboards, toilets, faucets, and
sinks.

If surfaces are dirty, clean them: Use detergent or soap and water prior to disinfection.

6- Wear a facemask if you are sick:

You should wear a face mask when you are around other people (e.g., sharing a room or vehicle) and before you enter a healthcare provider's office. If you are not able to wear a face mask (for example, because it causes trouble breathing), then you should do your best to cover your coughs and sneezes, and people who are caring for you should wear a facemask if they enter your room.



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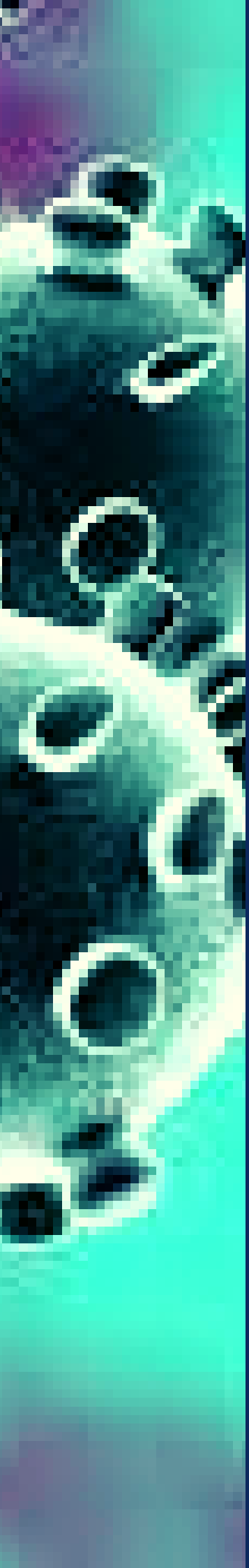

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