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### RESEARCH ARTICLE

## COVID-19 SOLUTION TO PREVENT ITS REPLICATION AND ACTION IN THE RESPIRATORY TRACT

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#### Manuscript Info

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ACE2 Receptor Inhibitor, DPP4 Inhibitor, Aerosol

#### Abstract

As this pandemic is growing very fast and the invention, trials and manufacturing of vaccine requires ample of time, so we have to find a solution to treat covid-19. We can use combination of sitagliptin-losartan in the form of aerosol which can prevent the replication and its invasion to the cell. The below given text briefly explain my perspectives regarding the use of given combination.

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#### Introduction:-

According to healthcare research scholars of various countries the SARS-CoV and MERS-CoV virus binds to ACE2 receptor and DPP4 respectively, both are found in lung cells. This virus enters mainly through nose and throat, and binds to above receptor present in lungs and bronchial region which can lead to pneumonia. Pathogens can get in and out of the upper airways more readily, viruses that replicate and get more infectious.

#### Hypothetical Research:

As this virus binds majorly and only to ACE2 receptor and DPP4 present only in lung cells, we can block the ACE2 receptor and inhibiting DPP4 by specific drug combination which in turn have no site for virus and receptor interaction. And after this we can give specific antiviral or antimalarial drug to kill the virus. The mechanism can help us to block the attack, replication and its effect on low and medium risk patient not having hypotension.

#### Drugs used for the above hypothesis:

Combination treatment of DPP4 inhibitor-ACE2 receptor inhibitor drugs i.e. sitagliptin-losartan combination can be used. This combination can help to block the ACE2 receptor (losartan)<sup>(1)</sup> and DPP4 (sitagliptin) and block the site of interaction for the virus.

Losartan only binds to ACE1 and ACE2 receptor and does not bind to any other receptor, so this drug can be helpful to be specific for the site. This drug also helps in one of the covid symptom i.e. renal failure.

Sitagliptin inhibits DPP4 which is used as an anti diabetic. As of this combination therapy is not yet reported for treatment of covid19, but the compatibility is reported.

#### Dosage form to be used for above combination:

Usage of aerosols are best for the above combination as this directly binds to lung cells, aerosols can be effective for this reason. Aerosols directly show result on lung cells and bronchial region. This dosage form doesn't need large amount of drug to be used as it prevent from first pass metabolism.

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**Mechanism/procedure to be treated with above combination therapy:**

First the above combination therapy to be inhaled by aerosol by low and medium risk patient to inhibit replication and binding with receptor. As the high risk patient's receptor are totally covered and bound with virus so there is no site for binding of drug. Therefore, it is necessary to use this combination to low and medium risk patient.<sup>[2]</sup>

Inhalation of this combination leads to blocking of receptor which in turn leads to no site for interaction of virus and receptor and prevent from replication, binding and invading the cell. The receptors got prevented from virus now specific antiviral or antimalarial drug to be used orally to kill the virus.

This combination affects synergistically than mono therapy.<sup>[3]</sup>

**Precaution to be taken during treatment:**

This treatment must be prohibited for patients having hypotension problem.

The aerosols must be inhaled once or rarely twice in a day to prevent its major effect on body.

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