

# Chemical Structure Role of Cell-Membrane Hydrocarbon Chain in Interactions with Antihypertensive Drugs (SARTANs)

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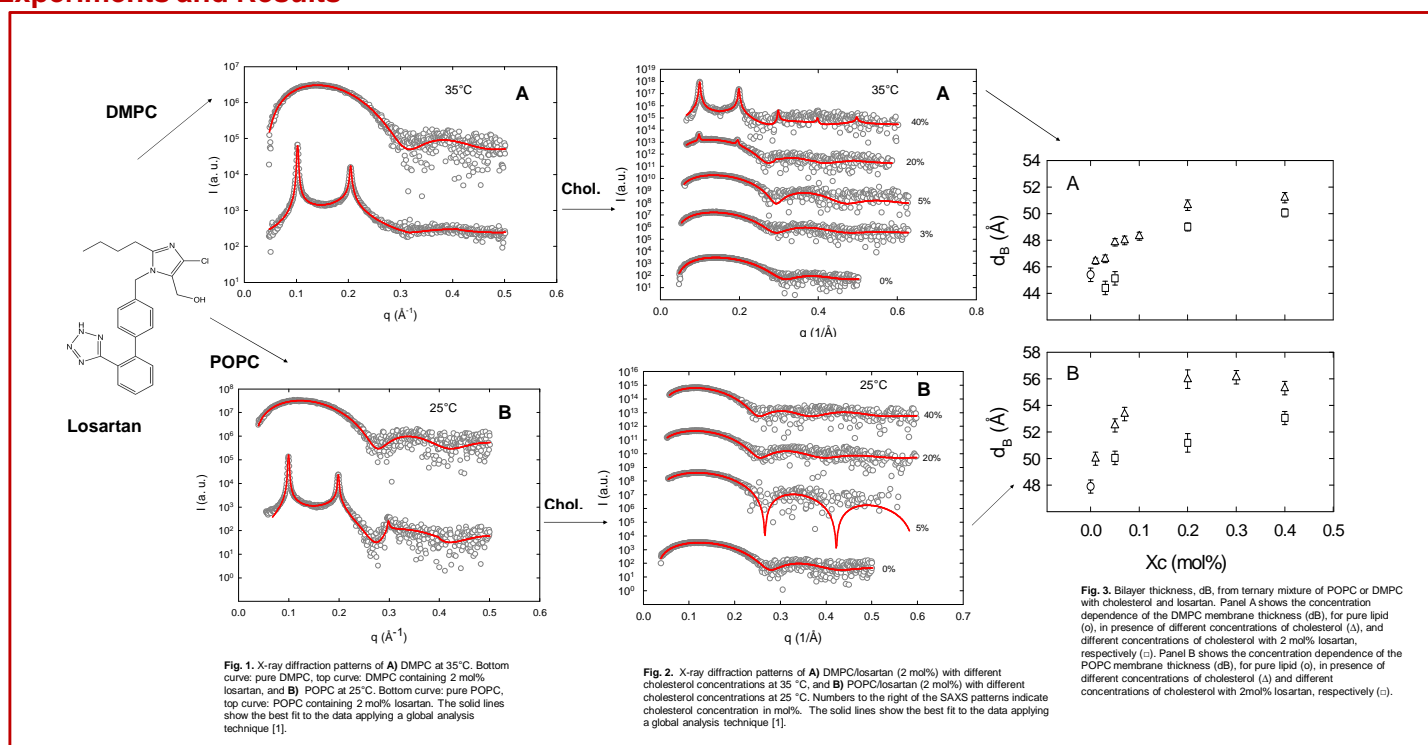
## Introduction

Stress associated with our contemporary society leads to many diseases, and hypertension is one of the major medical conditions related to it. Thus, there is a great need for novel effective drugs. One of the new categories of antihypertensive drugs contains AT1 antagonists (SARTANs), whose action is based on blocking the active site of the AT1 receptor. The aim of the present study is to achieve a basic understanding of the molecular mode that these drugs have on the membranes, to and in particular of the drug losartan.

## Material and Method

Palmitoyl-oleoyl phosphatidylcholine (POPC) and dimyristoyl phosphatidyl-choline (DMPC) / losartan mixtures were prepared as multilamellar vesicles (MLVs). Small-angle X-ray diffraction experiments were recorded at constant temperature (DMPC-based MLVs at 35°C, POPC-based MLVs at 25°C) at the Austrian SAXS beamline (Elettra, Italy). The data were analyzed by applying a previously developed full q-range model [1].

## Experiments and Results



## Conclusion

Losartan leads to a complete loss of positional correlations between adjacent bilayers for both DMPC and POPC, respectively, in agreement (Fig.1) with the previous study [2]. The effect was counterbalanced by the condensation effect of cholesterol, which is more pronounced for saturated hydrocarbon chains (DMPC). The saturated hydrocarbon chains of DMPC show a tighter packing density in the presence of cholesterol than the POPC monosaturated hydrocarbon chains, which is in agreement with the previous study [3]. Losartan not only favors the  $L_d$ -phase, but also helps to keep the membrane in a disordered state, while cholesterol tends to induce the  $L_o$ -phase.

## References

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