CombiMS wishes to thank all those who have participated in this trial and whose commitment to our research will be of benefit to many

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Searching for combined therapies to treat Multiple Sclerosis
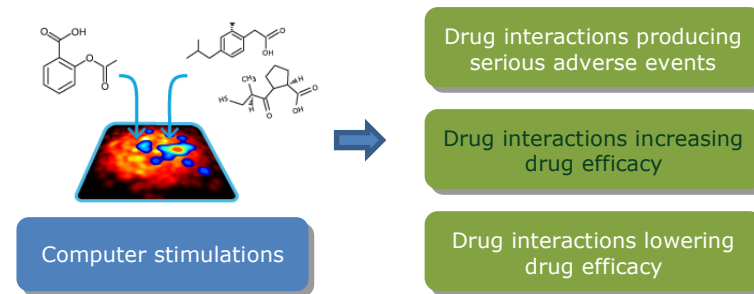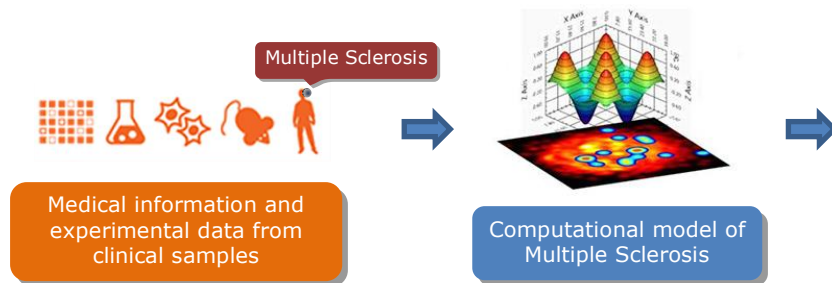
COMBIMS

CombiMS - a study carried out on over 150 different patients from Germany, Spain, Sweden and Switzerland.

www.combims.eu

Complex diseases affect multiple parts or processes in the body that are essential for us to remain healthy, which make them more difficult to understand and complicated to treat.

Drugs generally act on one target, meaning that more than one will probably be needed to control complex diseases.

However, administering multiple drugs can produce new effects, both beneficial and adverse. Hence, we need to be able to select combinations of therapies that will produce added benefits to the patient suffering from a complex disease, without producing adverse effects.

Medical information and experimental data from clinical samples

Multiple Sclerosis

Computational model of Multiple Sclerosis

Computer stimulations

Drug interactions producing serious adverse events

Drug interactions increasing drug efficacy

Drug interactions lowering drug efficacy

CHALLENGE — The search for **Combinatorial Therapies** is tortuous, involving the analysis of many drug combinations and focusing on several targets at the same time.

MULTIPLE SCLEROSIS — Multiple Sclerosis (MS) is an auto-immune disease that affects the brain and other parts of the nervous system, the body's immune system attacking its own nerves, to produce physical and cognitive disability. MS affects each person differently, and current treatments generally only improve some of the symptoms rather than controlling it as a whole.

Combining different therapies is a more promising way to treat all aspects of MS, a strategy is known as **Combinatorial Therapy**.

GOAL — **CombiMS** aims to develop a computational method that will help to discover new combinations of drugs for Multiple Sclerosis (a classic complex disease) based on **medical and scientific knowledge**, and using **computer simulations**.

METHODOLOGY — Computational models have been developed to combine clinical information with data obtained from patient's blood that reflect disease progression.

Using this data to identify a fingerprint of the different stages of MS, we aim to be able to track disease development and the response to combined therapies, and their possible side effects.

OUTCOMES

- *With the collaboration of the patients involved, we hope to establish a method to identify beneficial combined therapies for MS and other complex diseases.*

- *This method will be ratified by proposing 1 such therapy for MS for clinical evaluation.*