Lay summary of research project grant application

1. **Objective of the project**

   The goal for all patients with inflammatory rheumatic disease is to live a normal life without limitation in daily live. This includes family planning and having children. There is a high unmet need of robust data on the outcomes of pregnancies and on the safety of a substantial number of drugs when used before or during pregnancy. Currently, three registers in Europe collect prospective data on pregnancies in women with inflammatory rheumatic diseases (Germany, France and Norway) and one register is about to start (Switzerland). The aim of our project is to combine these data and to improve future pregnancy counseling by using better information on pregnancy outcomes and drug safety.

2. **Background**

   Inflammatory rheumatic diseases (RD) frequently affect women of childbearing age. At present we face a rapidly increasing number of medications available for the treatment of RD and a growing number of women in which disease activity can be sufficiently controlled so that family planning becomes a realistic target. Therefore, more pregnant women will be exposed to a variety of new drugs, and there is an urgent clinical need for valid data to advice these women regarding the safety of drugs. Randomized studies are not conducted in women who are pregnant, the literature is dominated by case series whereas prospective studies are rare. Data of manufacturer registers are often incomplete with high loss-to-follow up rates. Most of the biologic registers are not designed to capture the pregnancy course specifically and miss the non-biologic treated patients. Therefore, systematic prospective observation in daily care provides a unique possibility to fill the knowledge gap. Joint approaches among several countries which enable collaborative data analyses are essential.

3. **Methods and approach**

We will bring together experts who run existing pregnancy registers across Europe and explore which data are collected, which methods are applied and how many patients are included with the different underlying rheumatic diseases. We will then develop approaches for joint data analyses and perform at least one analysis. In addition we will bring together people planning new pregnancy registers to pass the experiences made within this consortium, to agree upon a core data set to be collected in all newly set-up registers and to evaluate possibilities for a common IT platform implemented in various countries to facilitate future joint data analyses.

4. **Primary and secondary outcome measures (if appropriate)**

The primary outcome is the definition of a core data set. We will agree on methods and minimal data sets to be collected by all pregnancy registers, specific for different diseases. Secondary, a first joint data analysis and publication on pregnancy outcomes in e.g. Rheumatoid Arthritis broken down by risk factors and exposures will be performed.

5. **Recruitment of participants (if appropriate)**

-not appropriate for our study -

6. **Inclusion and exclusion criteria (if appropriate)**

All registers include pregnant women with rheumatic diseases and follow them prospectively. The data of these pregnancies will be used in our study.

7. **Expected benefits for patients**.

The harmonization of existing registers and the standardization of data collection in new registers have the potential to lead to the world's largest source of information on drug safety in pregnancy in inflammatory rheumatic diseases. It is expected to contribute considerably to more certainty for our patients with regard to family planning and drug safety.

8. Expected benefits for society

It can be expected that results from our project will help doctors and other healthcare providers to give better advice and support in the context of family planning in the future.

9. Burden for patients participating in this study

- not applicable for our study-

What methods will be applied to carry out the project?

Via central co-ordination and during personal meetings, we will analyze the kind of data collection and available items in each participating register. A minimal data set will be agreed on and will serve as a prerequisite to perform a first statistical analysis with combined data.

10. Patient involvement in the design and conduct of the study

Two female patients with different rheumatic diseases and pregnancy experience will be involved in identifying research questions of interest and in defining the core data set, specifically the patient-reported outcomes. We plan to have at least two meetings a year and several telephone conferences to coordinate the research and to agree on research questions to be answered by parallel or joint data analyses. Patient participation in all meetings is crucial to explore which questions regarding pregnancies are most relevant for the patients.