Abstract of the Project of Prof. Dr. Andre Franke

A Genome-Wide Phenotype-Overlapping Approach for the Identification of Shared Genetic Disease Loci
Diseases have historically been defined using organ structures. However, recent genetic discoveries, including studies by the applicant, indicate that such a definition may not be appropriate in elucidating the genetic pathology, since one disease gene can predispose to several diseases. Nevertheless, a systematic approach is missing so far. Hence, jointly analyzing diseases that are likely to share etiological pathways may improve our future ability to develop effective therapies for them.

The applicant has readily available genome-wide data sets for more than 14 distinct, mostly inflammatory barrier diseases (>14000 patients, >8800 controls). Within the project described below, the applicant will use established and novel analytical approaches to identify novel shared loci and systematically follow them up. In brief, the main objectives are:

1. Detection and mapping of novel general inflammation genes
2. Definition of signature etiologies for disease groups
3. Potential redefinition of disease groups along general inflammation genes