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| **eMERGE Network: Manuscript Concept Sheet** | | |
| **Reference Number**  *(to be assigned by CC)* | NT375 | |
| **Submission Date** | 2/10/2020 | |
| **Project Title** | Pleiotropy in the Genetic Predisposition to Rheumatoid Arthritis - a phenome-wide association study and inverse-variance weighted meta-analysis | |
| **Tentative Lead Investigator** *(first author)* | Vivian Kawai | |
| **Tentative Senior Author**  *(last author)* | Jonathan Mosley | |
| **All Other Authors** | Mingjian Shi, Qiping Feng, Cecilia P. Chung, Ge Liu, Nancy J. Cox, Dan M. Roden, C. Michael Stein | |
| **Sites Participating** | Current participants: Vanderbilt  Open to all sites | |
| **Background / Significance** | Rheumatoid arthritis (RA) is associated with several cardiometabolic and autoimmune disorders in epidemiological studies, Thus, we examined the hypothesis that a genetic predisposition toward RA increases the risk for these cardiometabolic and autoimmune disorders | |
| **Outline of Project** | We have submitted a manuscript to ***Arthritis & Rheumatology***and the reviewers have requested replications for some of our associations. We would like to use eMERGE genetic data and PheWAS phenotypes for this validation. Specifically, we want to validate our associations between a RA polygenic risk score and the following 14 phenotypes: RA, RA and other autoinflammatory arthropathies, hypothyroidism NOS, hypothyroidism, Chronic lymphocytic thyroiditis , chronic thyroiditis, thyroiditis, type 1 diabetic retinopathy, type 1 diabetes, multiple sclerosis, other demyelinating diseases of CNS, lack of coordination, systemic sclerosis, and palpitations. | |
| **Desired Data - Common Variables\***  *(Available from the CC)* | Demographics  ICD9/10 codes  CPT codes  Phecodes  BMI | Common Variable Labs  Common Variable Meds  Other: Case/Control status on Phase I and Phase II phenotypes |
| **Other Desired Data *(Available from participating sites)*** |  | |
| **Desired Genetic Data** | eMERGE I-III Merged set (HRC imputed, GWAS)  eMERGE PGx/PGRNseq data set  eMERGEseq data set (Phase III)  eMERGE Whole Genome sequencing data set  eMERGE Exome chip data set  eMERGE Whole Exome sequencing data set  Other (not listed above): | |
| **Does project pertain to an existing eMERGE Phenotype?** | Yes, if so please list  No | |
| **Planned Statistical Analyses** | PheWAS | |
| **Ethical Considerations** | None | |
| **Target Journal** | Arthritis & Rheumatology (MS under revision) | |
| **Milestones**  *(This section should include the key dates for completion of project, including approval, project duration, draft completion, and submission.)* | Submit revisions to Journal: 2/25/2020 | |