Autosomal dominant polycystic kidney disease (ADPKD) is the most common genetic disease of the kidney. ADPKD inflicts all races and has been described in all geographical localities. ADPKD, as well as its main complication Chronic kidney disease (CKD), are systemic diseases, and bone disorders play a role not only in their pathogenesis but, most plausibly, also in their progression. The knowledge on this problem is still incomplete and conducting further research is justified by our preliminary findings, showing that bone biomarker, sclerostin, is significantly different in patients with ADPKD as compared to patients with other etiologies underlying CKD. There are also theoretical basis for reasoning that this biomarker plays a role in the disease progression. The presented project is a result of joined efforts of three research centers: Medical University of Gdańsk, Karolinska Institutet, Stockholm, Sweden and Katholieke Universiteit, Leuven, Belgium. Our objective is to establish a minimally invasive strategy that will enable to describe a phenotype of mineral and bone disorders (CKD-MBD) in different stages of ADPKD, as well as to evaluate the association between bone and the disease progression. The novelty of the proposed strategy is an integrative approach using data on the bone quality obtained in four aspects: bone mass and structure, bone metabolism with the use of biomarkers present in blood and urine, and bone material strength assessed with innovatory method of the reference point indentation (RPI).

Should the proposed strategy prove to be applicable, it will constitute a pattern for further research on bone complications also in other CKD etiologies.