Chronic kidney disease represents the fastest growing pathology worldwide. Elucidating new regulators of kidney development and disease will promote the development of strategies for kidney repair. Based on our preliminary data, we conclude that

1) Gpr126 is expressed in the collecting duct,
2) in contrast to the heart, where only the NTF is required for proper development, kidney development depends on CTF and NTF,
3) Gpr126 expression is upregulated during renal disease, and
4) in renal disease Gpr126 is ectopically expressed in renal cells other than collecting duct cells.

Thus we hypothesize that Gpr126

1) contributes to the differentiation of the nephron establishing segment identity,
2) might be useful as diagnostic marker in kidney disease, and/or
3) is a promising new therapeutic target for renal diseases. Therefore, we propose to characterize the expression pattern of Gpr126 in kidney development and disease and to elucidate the role of Gpr126 function during kidney development.