Table S4: Summary of literature on relevance of smoking to development and progression of CKD

| Author | Year | Design | Population | Mean eGFR | Reported consumption among current smokers | Outcome | N | Events | Average length of follow-up | Results (current vs not current smokers unless stated) | Additional covariates included in model |
|--------|------|--------|------------|-----------|------------------------------------------|---------|---|-------|-----------------------------|-----------------------------------------|--------------------------------------|
| Yoshida' | 2008 | Prospective | CKD | Not stated | Slope of 1/Cr | 2012 | - | - | -2.06 ml/min; p=0.014 | Age, sex, high BMI, metabolic syndrome, proteinuria, hypertension, high triglyceride, low HDL-C, high fasting plasma glucose, ACEI/ARB therapy, CCB therapy |
| Grams' | 2012 | Prospective | CKD | 39 | Not stated | ESRD | 1722 | 1099 | Median 17.6 yrs | HR 1.3 (1.09-1.55) | Age, sex, ethnicity, SBP, cause of kidney disease, diabetes, presence of CVD, log 24-hour proteinuria, and eGFR |
| Tanaka' | 2013 | Prospective | CKD | 55 | Not stated | ESRD/2xCr | 449 | 46 | Median 3.3 years | HR 1.25 (0.41-3.84) | Age, sex, diabetes, hypertension, dyslipidemia, eGFR, proteinuria, serum albumin, skin autofluorescence |
| Ricardo* | 2015 | Prospective | CKD | 43 | Not stated | ESRD or 50% ↓ eGFR | 3006 | 726 | Median 4 years | HR 1.47 (1.19-1.82) | Age, sex, ethnicity, education, diabetes, dyslipidemia, hypertension, any CVD, ACEI/ARB, eGFR and log 24-hour urine protein excretion |
| Haroun' | 2003 | Prospective | General | Not stated | CKD | 23,534 | 143 | 18 years | HR 2.6 (1.8-3.7) | Age, sex, treated diabetes |
| Shankar" | 2006 | Prospective | General | n/a | Not stated | CKD | 3392 | 114 | 5 years | HR: 1.93 (1.15-3.25) [current vs never smokers] | Age, sex, education, body mass index, current NSAID use, hypertension status, diabetes status, history of CVD, and heavy drinking |
| Ishani' | 2006 | Prospective | General | n/a | Not stated | ESRD | 12,866 | 213 | 25 years | HR 1.84 (1.35-2.51) | Age, black ethnicity, BMI, family history of diabetes, triglycerides, HDL-C, LDL-C, uric acid, fasting glucose, SBP, eGFR, haematocrit and urine proteinuria |
| Author          | Year | Design       | Population | Mean eGFR | Reported consumption among current smokers | Outcome | N     | Events | Average length of follow-up | Results (current vs not current smokers unless stated) | Additional covariates included in model |
|-----------------|------|--------------|------------|-----------|-------------------------------------------|---------|-------|--------|------------------------------|------------------------------------------|----------------------------------------|
| Yamagata*       | 2007 | Prospective  | General    | 80        | Not stated                                | CKD3-5  | 123,764 | 19,411 | 10 years                     | HR 1.13 (1.05-1.22) in men; 1.16 (1.06-1.26) in women | Age, proteinuria, hematuria, concomitant proteinuria and hematuria, IGT, diabetes, hypertension, hypercholesterolemia, low HDL-C, hypertriglyceridemia, obesity, alcohol consumption |
| Yacoub*         | 2010 | Case-control | General    | n/a       | Not stated                                | CKD     | 569   | 198    |                              | OR 1.63 (1.08-2.45) [current vs never smokers] | Age and sex |
| Hallan**        | 2011 | Prospective  | General    | 97        | Average 14.5 pack years                  | CKD5    | 65,589 | 124    | Median 10.3 yrs              | HR 4.01 (1.43-11.25) in <70; 1.09 (0.51-2.33) in ≥70 | Age, sex, high education, physical inactivity, diabetes, prevalent CVD, antihypertensive use, SBP, waist circumference, total/HDL-C, eGFR, ACR |
| Lipworth**      | 2012 | Prospective  | General    | n/a       | Not stated                                | ESRD    | 79,943 | 662    | 4 yrs                        | HR 1.2 (1.02-1.4)                           | Age, sex, recruitment source, education, annual household income, history of diabetes, hypertension, stroke, high cholesterol, and MI/CABG. |
| Carter**        | 2015 | Prospective  | General    | Cigarettes smoked per day: Men 22.6% <10; 39.8% ≥ 20 Women 40.7% <10; 20.9% ≥20 | Renal death | 954,029 | 1072   | 10 years | RR 2.1 (1.6-2.6) in men; 1.9 (1.5-2.5) in women | Age, race, educational level, current alcohol use, and cohort. |
| Paterson**      | 2005 | Prospective  | ADPKD      | 83        | Average 18 pack years                     | Creatinine clearance | 406 | - | ns | Univariate analyses | |
| Ozkok**         | 2013 | Prospective  | ADPKD      | 60        | Average 4.2 pack years >1 ml/min/yr ↓GFR | Renal death | 171 | - | 8 years | HR 0.78 (0.28-2.16) | Age, gender, baseline serum creatinine, presence of hypertension, abdominal wall hernia, hepatic cyst, familial history of ADPKD, macroscopic hematuria, 24-h proteinuria, urinary stone, palpable kidneys in physical examination and use of ACEIs and/or ARBs |
### Works Cited:

| Author                  | Year | Design       | Population | Mean reported consumption among current smokers | Outcome | N     | Events | Average length of follow-up | Results (current vs not current smokers unless stated) | Additional covariates included in model |
|-------------------------|------|--------------|------------|-----------------------------------------------|---------|-------|--------|------------------------------|---------------------------------------|--------------------------------------|
| Orth et al.             | 1998 | Case-control | ADPKD/ IgA | n/a                                           | ESRD    | 204   | 102    | OR for >5 pack years         | 4.5 (1.9-10.9) in men; 1.0 (0.3-3.4) in women | None                                 |
| Sawicki et al.          | 1994 | Prospective  | DN         | n/a                                           | Average 18 pack years | 1.36 ml/min ↓GFR | 93 | 25 | 1 year | OR 2.74 (1.57-4.81) per 10 pack years | Age, sex, diabetes duration, Hba1c, BMI, daily protein intake, 24-h urinary sodium excretion, SBP, DBP |
| Chuahirun et al.        | 2002 | Prospective  | DN         | 98                                            | Not stated | Slope of eGFR | 33 | - | 5 years | -0.59 to -0.09 ml/min (p=0.009) | Age, gender, ethnicity, initial mean BP, initial PCR |
| Phisitkul et al.        | 2008 | Prospective  | DN         | 95                                            | Slope of 1/Cr | 91 | - | Not stated, p=0.041 | Age, sex, ethnicity, diabetes, SBP, urine albumin, Hba1c, LDL-C, HDL-C, eGFR |

### Abbreviations:

- 2xCr = doubling of creatinine; 50%-leGFR = halving of eGFR; ACEi = angiotensin converting enzyme inhibitor; ADPKD = autosomal dominant polycystic kidney disease; ARB = angiotensin receptor blocker; BMI = body mass index; CCB = calcium channel blocker; CKD = chronic kidney disease; CVD = cardiovascular disease; DBP = diastolic blood pressure; DN = diabetic nephropathy; ESRD = end-stage renal disease; (e)GFR = (estimated) glomerular filtration rate; HR = hazard ratio; HDL-C = high density lipoprotein cholesterol; IgA = IgA nephropathy; IGT = impaired glucose tolerance; NSAID = non-steroidal anti-inflammatory drug; OR = odds ratio; PCR = protein creatinine ratio; SBP = systolic blood pressure

### References:

1. Yoshida T, Takei T, Shirotta S, et al. Risk factors for progression in patients with early-stage chronic kidney disease in the Japanese population. *Int Med* 2008; 47 (21): 1859-1864
2. Grams ME, Coresh J, Segev DL, Kucirka LM, Tighiouart H, Sarnak MJ. Vascular disease, ESRD, and death: interpreting competing risk analyses. *Clin J Am Soc Nephrol* 2012; 7 (10): 1606-1614
3. Tanaka K, Nakayama M, Kanno M, et al. Skin autofluorescence is associated with the progression of chronic kidney disease: a prospective observational study. *PLoS One* 2013; 8 (12): e83799
4. Ricardo AC, Anderson CA, Yang W, et al. Healthy lifestyle and risk of kidney disease progression, atherosclerotic events, and death in CKD: findings from the Chronic Renal Insufficiency Cohort (CRIC) Study. *Am J Kid Dis* 2015; 65 (3): 412-424
5. Haroun MK, Jaar BG, Hoffman SC, Comstock GW, Klag MJ, Coresh J. Risk factors for chronic kidney disease: a prospective study of 23,534 men and women in Washington County, Maryland. *J Am Soc Nephrol* 2003; 14 (11): 2934-2941
6. Shankar A, Klein R, Klein BE. The association among smoking, heavy drinking, and chronic kidney disease. *Am J Epidemiol* 2006; 164 (3): 263-271
7. Ishani A, Grandits GA, Grimm RH, et al. Association of single measurements of dipstick proteinuria, estimated glomerular filtration rate, and hematocrit with 25-year incidence of end-stage renal disease in the multiple risk factor intervention trial. *J Am Soc Nephrol* 2006; 17 (5): 1444-52
8. Yamagata K, Ishida K, Sairenchi T, et al. Risk factors for chronic kidney disease in a community-based population: a 10-year follow-up study. *Kidney Int.* 2007; 71 (2): 159-66
9. Yacoub R, Habib H, Lahdo A, et al. Association between smoking and chronic kidney disease: a case control study. *BMC Public Health.* 2010; 10: 731
10. Hallan SI, Orth SR. Smoking is a risk factor in the progression to kidney failure. *Kidney Int.* 2011; 80 (5): 516-23
11. Lipworth L, Mumma MT, Cavanaugh KL, et al. Incidence and predictors of end stage renal disease among low-income blacks and whites. *PLoS One* 2012; 7 (10): e48407
12. Carter CE, Katz R, Kramer H, et al. Influence of urine creatinine concentrations on the relation of albumin-creatinine ratio with cardiovascular disease events: the Multi-Ethnic Study of Atherosclerosis (MESA). *Am J Kid Dis* 2013; 62 (4): 722-9
13. Paterson AD, Magistroni R, He N, et al. Progressive loss of renal function is an age-dependent heritable trait in type 1 autosomal dominant polycystic kidney disease. *J Am Soc Nephrol* 2005; 16 (3): 755-62
14. Ozkok A, Akpinar TS, Tufan F, et al. Clinical characteristics and predictors of progression of chronic kidney disease in autosomal dominant polycystic kidney disease: a single center experience. *Clin Exp Nephrol* 2013; 17 (3): 345-51

15. Orth SR, Stockmann A, Conradt C, et al. Smoking as a risk factor for end-stage renal failure in men with primary renal disease. *Kidney Int.* 1998; 54 (3): 926-31

16. Sawicki PT, Didjurgeit U, Muhlhauser I, Bender R, Heinemann L, Berger M. Smoking is associated with progression of diabetic nephropathy. *Diabetes Care* 1994; 17 (2): 126-31

17. Chuahirun T, Wesson DE. Cigarette smoking predicts faster progression of type 2 established diabetic nephropathy despite ACE inhibition. *Am J Kid Dis* 2002; 39 (2): 376-82

18. Phisitkul K, Hegazy K, Chuahirun T, et al. Continued smoking exacerbates but cessation ameliorates progression of early type 2 diabetic nephropathy. *Am J Med Sci* 2008; 335 (4): 284-91