Table 1: Observational studies reviewed in this systematic review regarding the expression of matrix metalloproteinases and tissue inhibitors of metalloproteinases in chronic kidney disease and acute kidney injury.

Ref	Year/ study type	Group studied, age and sex†	Fluid sample/ MMP/ TIMP studied	Main findings
10	2006*	60 CKD (60.5±1.9, 29/31) 40 CS (40.4±2.7, 20/20)	$_{P}$MMP-2[ǂ,ɼ] $_{P}$MMP-9[ǂ,ɼ]	↑ MMP-2 in CKD compared to CS ↓ MMP-9 in CKD compared to CS ↗ MMP-2 with SCr ↙ MMP-9 with SCr
11	2007[§]	93 T1DM (19.3±6.3, 49/44) 50 HC (24.1±6.8, 24/26)	$_{P}$MMP-2[ɳ,ǂ] $_{U}$MMP-2[ɳ,ǂ] $_{P}$TIMP-1[ǂ] $_{P}$TIMP-2[ǂ,ɼ]	↑ $_{U}$MMP-2 level in T1DM compared to HC ↑ $_{P}$MMP-2 activity in T1DM compared to HC ↗ $_{P}$MMP-2 and $_{U}$MMP-2/Cr ↔ TIMP-1 and TIMP-2 in T1DM compared to HC ↙ $_{U}$MMP-2 /Cr and total MMP-2 with age ↑ $_{U}$MMP-2/Cr and total MMP-2 in T1DM >3 years of duration compared to ≤3 years of duration
12	2007*	20 CRF (61.2±12.3, 5/15) 16 T2DM (58.1±6.7, 9/7) 14 DN (T2DM+CRF) (59.2±8.0, 9/5) 20 HC (55.4±11.0, 9/11)	$_{S}$MMP-2[ǂ] $_{S}$MMP-9[ǂ] $_{S}$TIMP-1[ǂ] $_{S}$TIMP-2[ǂ]	↓ TIMP-1 and TIMP-2 in DN compared to T2DM ↑ MMP-9/TIMP-1 and MM-2/TIMP-2 in DN compared to T2DM ↓ TIMP-1 and TIMP-2 in DN compared to CRF ↑ MMP-9/TIMP-1 and MMP-2/TIMP-2 in DN compared to CRF ↓ MMP-2, TIMP-2 and MMP-2/TIMP-2 in T2DM compared to HC
13	2008[§]	29 AKI (59.0±3.6,19/10) 30 NS (40.8±2.4, 15/15) 15 CKD (69.2±2.4, 10/5) 10 UTI (49.8±8.1, 2/8)	$_{U}$MMP-9[ǂ]	↑ MMP-9 in AKI compared to NS+CKD ↑ MMP-9 in UTI compared to AKI
14	2009[§]	44 HC age-matched (58±10, 19/25) 80 CKD patients not yet dialyzed (52±16, 37/43)	$_{S}$MMP-2[ǂ] $_{S}$MMP-9[ǂ]	↑ MMP-2 in CKD compared to HC ↔ MMP-9 in CKD compared to HC ↑ MMP-2 and MMP-9 in CKD with DM compared to CKD without DM
15	2010[§]	121 T1DM (20.8±7.6, 59/62) 55 HC (24.3±7.6, 24/31)	$_{P}$MMP-9[ǂ] $_{U}$MMP-9[ǂ] $_{P}$TIMP-1[ǂ]	↑ $_{U}$MMP-9 in T1DM compared to HC ↑ $_{U}$MMP-9 in female subjects compared to male subjects across the entire population, T1DM and HC ↔ $_{P}$MMP-9 and TIMP-1 in HC compared to T1DM () $_{U}$MMP-9 and glucose in females with T1DM
16	2010[§]	28 HC age-matched with DM excluded [57,51-61, 24/4] 48 T2DM with normoalbuminuria [62, 53-69, 26/22] 27 T2DM with albuminuria [69,58-73, 18/9]	$_{U}$MMP-2[ʟ] $_{U}$MMP-8[ʟ] $_{U}$MMP-9[ʟ]	-MMP-8 and MMP-9, but not MMP-2, differed among groups, and are highest in albuminuria patients -MMP-9 activity is detectable in 89% of albuminuria patients, 74% of normoalbuminuria and 25% of HC
17	2011[ŧ]ŏ	38 Recovery AKI with renal replacement therapy (52.2±15.7, 23/15) 38 Non-recovery AKI with renal replacement therapy (64.7±16.2, 23/15)	$_{U}$NGAL,MMP-9[ǂ]	∩ Predict renal recovery
18	2012[§]	98 ESKD (50±9, 81/17) 38 HC (51±11,19/19)	$_{P}$MMP-2[ɳ] $_{P}$TIMP-2[ǂ]	↑ MMP-2 in ESKD compared to HC ↑ TIMP-2 in ESKD compared to HC ↓ MMP-2 after hemodialysis ↔ TIMP-2 after hemodialysis
19	2012[§]	200 CKD (69±11,144/56) 152 HS (68±12,103/49)	$_{S}$MMP-2[ɳ]	↑ MMP-2 in CKD compared to HS
20	2012[ð]	20 DKD with normoalbuminuria (72 ±8,8/12) 48 DKD with microalbuminuria (73±9,31/17) 34 DKD with macroalbuminuria (63±11,27/7) 21 DM without KD disease) (65±13,12/9) 21 HC [42.5, 29-56,8/13]	$_{U}$MMP-1[ɛ] $_{U}$MMP-2[ɛ] $_{U}$MMP-8[ɛ] $_{U}$MMP-9[ɛ] $_{U}$MMP-1[ɜ]ɢ	↑ Overall MMP activity in DKD patients compared to DM and HC ↑ Total MMP activity in normoalbuminuric and microalbuminuric DKD compared to macroalbuminuric DKD ↗ Total MMP activity with interstitial collagenase activity, gelatinase activity and HbA1c
21	2014[§]	52 Hypertensive GFR< 60 (66.6±11.0,31/21) 335 Hypertensive GFR≥ 60 (53.8±10.2,206/102)	$_{S}$MMP-2[ǂ] $_{S}$MMP-9[ǂ] $_{S}$TIMP-1[ǂ]	↑ TIMP-1 low GFR ↔ MMP-2 and MMP-9 in low GFR ↓ MMP-9/TIMP-1 ratio in low GRF - MMP-9/TIMP-1 ratio is an independent predictor of lower eGFR and albuminuria
22	2015[ð]	141 DKD (57±8,78/63)	$_{S}$MMP-7[ǂ] $_{U}$MMP-7[ǂ]	() $_{U}$MMP-7 with mortality after adjustment for demographic and clinical covariates and $_{S}$MMP-7
23	2015[ð]	37 SA-AKI surgical patients [70.0,61.5-75.0,19/18] 16 NSA-AKI surgical patients [70.0,57.5-77.25,9/7] 50 controls without sepsis [65.0, [57.75-74.0,22/28]	$_{S}$MMP-9[ǂ] $_{S}$TIMP-1[ǂ]	↑ MMP-9 in SA-AKI compared to NSA-AKI and controls ↓TIMP-1 and MMP-9/TIMP-1 ratio in SA-AKI compared to NSA-AKI and controls
24	2016*	17 Normoalbuminuric hypertensive patients under long-term RAS blockade (62.24±8.80,7/10) 22 Moderate and severe resistant albuminuric hypertensive patients under long-term RAS blockade, which 14 are moderate (65.72±8.29, 8/6) and 8 are severe (65.72±8.29, 6/2)	$_{P}$MMP-2[ǂ,ɼ] $_{P}$MMP-9[ǂ,ɼ] $_{P}$MMP-1[ɣ] $_{P}$MMP-9/TIMP-1[æ]	^ MMP-2 in conditions of albuminuria ↓ MMP-9/TIMP-1 in normoalbuminuric compared to resistant albuminuric ↔ MMP-2 and MMP-9 levels in normoalbuminuric compared to resistant albuminuric ↑ Total MMP-2 and total MMP-9 activity in normoalbuminuric compared to resistant albuminuric ↑ MMP-9 active form levels in normoalbuminuric compared to resistant albuminuric ↙ GFR and MMP-9 levels
25	2016[§]	80 CKD (67.2±11.7,45/35) 24 HS (61.2±9.6,7/17)	$_{S}$MMP-2[ǂ] $_{S}$MMP-9[ǂ] $_{S}$TIMP-1[ǂ] $_{S}$TIMP-2[ǂ]	↑ MMP-2 in CKD compared to HC ↑ MMP-2/TIMP-2 ratio in CKD compared to HC ↓ TIMP-1 in CKD compared to HC ↔ MMP-9 and TIMP-2 in CKD compared to HC
6	2017[§]	28 WRI (55.9±11.5,7/21) 106 NRI (41.2±13.7,23/83)	$_{S}$MMP-2[ɼ] $_{U}$MMP-9[ɼ]	() Presence of MMP-2 or both and gelatinases and arbitrary units of activity ≥P90 with microalbuminuria () Presence of MMP-2 with hyperuricemia

*: The data indicate single measurement, [§]: cross-sectional study referred by authors; [ɛ]: case-control study referred by authors; [ð]: prospective observational study referred by authors. †: (mean ± standard deviation, No of males/No of females), [median, interquartile range, No of males/No of females]. AKI: acute kidney injury, CKD: chronic kidney disease, CRF: chronic renal failure, Cr: creatinine, CS: control subjects, DM: diabetes mellitus, DKD: diabetic kidney disease, DN: diabetic nephropathy, ESKD: end-stage kidney disease, GRF: glomerular filtration rate, N: normal subjects, HC: healthy controls, HS: healthy subjects, NRI: no renal impairment: GFR ≥60 mL/min/1.73 m^2 and ≤2.9 mg/dL urinary albumin, NSA: non-sepsis associated, P: plasma, S: serum, SA: sepsis associated, U: urine, T1DM: type 1 diabetes mellitus, T2DM: type 2 diabetes mellitus, UTI: urinary tract infection, WRI: with renal impairment: GFR ≥60 mL/min/1.73 m^2 and ≥3.0 mg/dL urinary albumin or with GFR ≤59 mL/min/1.73 m^2, regardless of the level of urinary albumin. NGAL: neutrophil gelatinase-associated lipocalin, SCr: serum creatinine, U: urine. [ǂ]: enzyme-linked immunosorbent assay, [ɼ]: zymography, [ɳ]: fluorokine multianalyte profiling assay, [ǂ]: biotrak activity assay system, [ʟ]: Total MMP activity assay, [ɛ]: Gelatinase/collagenase assay, [ɣ]: immunoblotting and immunoprecipitation, [æ]: MMP/TIMP interaction assay, ↑: increase, ↓: decrease, ↔: no difference, ↗: positive correlation, ↙: inverse correlation, ↕: no correlation, (): associated,)(: non-associated, ∩: area under the curve, ^: non-active enzyme, -: other types of findings.