

**Supplementary Table 1.** Summary of altered bile acid profile in patients with MASLD or CKD and animal models of MASLD or CKD

Author	Groups	Sample	Diagnosis	Findings
MASLD				
Nimer et al. <sup>27</sup> (2021)	MASLD (n=102) vs. HC (n=50)	Serum	Liver biopsy	Increased GCA, TCA, CDCA, GCDCA, TCDCA, GDCA, GHCA, GDCA, TDCA, GUIDCA, HDCA, 3-keto-DCA, Iso-DCA Decreased 7-keto-DCA, LCA
Chen et al. <sup>25</sup> (2020)	MASLD (n=538) vs. HC (n=30)	Serum	Liver biopsy	Increased total BAs, PBAs, SBAs
Jiao et al. <sup>5</sup> (2018)	MASH (n=16) vs. HC (n=11)	Serum	Liver biopsy	Increased total BAs, SBAs, SBAs/PBAs Increased CA, CDCA, DCA, UDCA
Puri et al. <sup>21</sup> (2018)	MASH (n=37) vs. MAFL (n=25) vs. HC (n=24)	Serum	Liver biopsy	Increased PBAs, con PBAs, con CA, con CDCA, con UDCA, Decreased total SBAs, total SBAs/PBAs Increased GCA, TCA, GCDCA, TCDCA, DCA
Tan et al. <sup>40</sup> (2019)	MASLD (n=34) vs. HC (n=14)	Serum	Liver biopsy	Increased TCA Decreased TCDCA, GLCA
Lake et al. <sup>39</sup> (2013)	MASH (n=16) vs. HC (n=19)	Serum	Liver biopsy	Increased TCA, TDCA, GCDCA Decreased CA, GDCA.
Caussy et al. <sup>26</sup> (2019)	MASLD (n=20) vs. HC (n=136)	Serum	Liver biopsy	Increased con PBAs Decreased uncon BAs, PBAs and GHCA
Sydor et al. <sup>41</sup> (2020)	HC (n=20) vs. MASH-non-HCC (n=34) vs. MASH-HCC (n=33)	Serum	Ultrasound or liver biopsy	Increased total BAs, con BAs, con PBAs Increased GCA, GCDCA, CDCA, TCA, TLCA, UDCA, TUDCA, GUIDCA
Smirnova et al. <sup>22</sup> (2022)	MASH (n=34) vs. MAFL (n=23) vs. HC (n=18)	Fecal	Liver biopsy	Increased SBAs, 7,12-diketo-LCA, GDCA, LCA, TLCA
Mouzaki et al. <sup>20</sup> (2016)	MASH (n=15) vs. MAFL (n=12) vs. HC (n=25)	Fecal	Liver biopsy	Increased fecal BAs, PBAs/SBAs, Increased CA, CDCA
Li et al. <sup>34</sup> (2021)	MASH (n=8) vs. HC (n=8)	Fecal	Fed with MCD diet	Increased PBAs, especially CDCA, CA, GCA, GHCA, and NorCA Decreased SBAs, especially TDCA, THDCA, GHDC, and T $\omega$ MCA
He et al. <sup>36</sup> (2021)	MASH (n=6) vs. HC (n=6)	Serum	Liver biopsy	Increased TDCA, DCA, TCA, CA Decreased SBAs, MCA, TUDCA
Li et al. <sup>89</sup> (2020)	MASH (n=8) vs. HC (n=8)	Colon	Liver biopsy	Increased GCA, TCA, TCDCA, CA, T $\beta$ MCA, T $\alpha$ MCA, GDCA Decreased $\beta$ CDCA, LCA, iso-LCA, 12-keto-LCA
CKD				
Jimenez et al. <sup>15</sup> (2002)	CRF (n=23) vs. HC (n=31)	Serum	abnormalities of kidney function >3 months	Increased total BAs, DCA Decreased CA
Li et al. <sup>32</sup> (2022)	HC (n=10) vs. Hypertension (n=30) vs. Hypertensive nephropathy (n=11)	Serum	30-seGFR $\leq$ 60 mL/min/1.73m <sup>2</sup> OR ACR $\geq$ 30 mg/g	Increased TCA Decreased CDCA
Wei et al. <sup>37</sup> (2021)	DM mice (n=12) vs. HC (n=10)	Serum	db/db mice	Increased total BAs, TCA, T $\beta$ MCA

Supplementary Table 1. Continued

Author	Groups	Sample	Diagnosis	Findings
Chu et al. <sup>31</sup> (2015)	CRF (n=61) vs. HC (n=34)	Serum	15≤eGFR≤59 mL/min/1.73 m <sup>2</sup>	Increased serum BAs Decreased 24h urinary BAs
Li et al. <sup>33</sup> (2019)	ESRD (n=77) vs. HC (n=30)	Serum	eGFR<15 mL/min/1.73 m <sup>2</sup>	Increased βMCA, GCDCA, TCDCA, TCA, GCA, TαMCA, THCA, TUDCA Decreased CA, CDCA, DCA, HDCA, UDCA, α + ωMCA, γMCA, 7-keto-LCA, 12-keto-LCA, 6,7-diketo-LCA
Zhao et al. <sup>38</sup> (2019)	DN mice (n=7) vs. HC (n=7)	Fecal	Injected with STZ	Increased total BAs, CA/TCA Decreased DCA/CA

MASLD, metabolic dysfunction-associated steatotic fatty liver disease; MASH, metabolic dysfunction-associated steatohepatitis; MAFL, metabolic dysfunction-associated fatty liver; HCC, hepatocellular carcinoma; ESRD, end stage renal disease; HC, healthy control; CRF, chronic renal failure; DN, *diabetic nephropathy*; DM, *diabetes mellitus*; MCD, methionine-choline deficiency; STZ, *streptozocin*; PBAs, primary bile acids; SBAs, secondary bile acids; con BAs, conjugated bile acids; uncon BAs, unconjugated BAs; CA, cholic acid; GCA, glycocholic acid; TCA, taurocholic acid; CDCA, chenodeoxycholic acid; GCDCA, glycochenodeoxycholic acid; TCDCA, taurochenodeoxycholic acid; GUDCA, glyoursodeoxycholic acid; TUDCA, taoursodeoxycholic acid; DCA, deoxycholic acid; GDCA, glycodeoxycholic acid; HDCA, hyodeoxycholic acid; THDCA, taurohyodeoxycholic acid; GHDCA, glycohyodeoxycholic acid; GHCA, hyocholic acid; TUCA, tauroursocholic acid; GLCA, glycolithocholic acid; TLCA, tauroolithocholic acid; NorCA, nor-cholic acid; NorDCA, nor-deoxycholic acid; MCA, muricholic acid; TωMCA, tauro ω-muricholic acid; TβMCA, tauro β-muricholic acid; TαMCA, tauro α-muricholic acid.