

KEY:

**Red Highlights:** Changes to be made to DB ontology based on differences with ontology in flat files (for Editorial Office Use Only)

**Red text:** Changes to be made to DB ontology that were unable to be made during last ontology update (for Editorial Office Use Only)

**TS22 urinary and reproductive systems (14dpc)**

|            |  |
|------------|--|
| EMAP:25787 | mouse  |
| EMAP:5720  | └ organ system   |
| EMAP:5721  | └ visceral organ   |
| EMAP:6667  | └ urinary system   |
| EMAP:6672  | └ mesentery  |
| EMAP:29612 | └ rest of mesentery  |
| EMAP:6673  | └ urogenital mesentery   |
| EMAP:6674  | └ metanephros (syn: kidney)  |
| EMAP:27716 | └ renal capsule  |
| EMAP:27723 | └ nephrogenic zone   |
| EMAP:27730 | └ nephrogenic interstitium (syn: peripheral blastema)                              |
| EMAP:27737 | └ cap mesenchyme (syn: condensed mesenchyme)                                       |
| EMAP:27744 | └ pretubular aggregate (syn: pretubular condensate)                                |
| EMAP:27751 | └ ureteric tip (syn: ureteric ampulla)   |
| EMAP:31047 | └ ureteric tree terminal branch excluding tip itself                               |
| EMAP:6681  | └ renal cortex   |
| EMAP:27830 | └ renal vesicle (syn: epithelial vesicle; stage I nephron)                         |
| EMAP:31694 | └ renal connecting segment of renal vesicle  |
| EMAP:31725 | └ distal renal vesicle   |
| EMAP:31719 | └ proximal renal vesicle   |
| EMAP:27836 | └ comma-shaped body  |
| EMAP:27842 | └ upper limb of comma-shaped body (syn: distal limb of comma-shaped body)          |
| EMAP:27848 | └ lower limb of comma-shaped body (syn: proximal limb of comma-shaped body)        |
| EMAP:31711 | └ renal connecting segment of comma-shaped body                                    |
| EMAP:27854 | └ s-shaped body (syn: stage II nephron)  |
| EMAP:27866 | └ renal connecting tubule of s-shaped body   |
| EMAP:27872 | └ distal segment of s-shaped body (syn: upper limb of s-shaped body)               |
| EMAP:27878 | └ medial segment of s-shaped body (syn: mid-portion of s-shaped body)              |
| EMAP:27884 | └ proximal segment of s-shaped body (syn: lower limb of s-shaped body)             |
| EMAP:27896 | └ visceral epithelium  |
| EMAP:27902 | └ parietal epithelium  |
| EMAP:27908 | └ capillary loop renal corpuscle (syn: renal corpuscle of the stage III nephron)   |
| EMAP:27926 | └ associated interstitium of renal corpuscle                                       |
| EMAP:27920 | └ parietal epithelium  |
| EMAP:27938 | └ presumptive endothelium of renal corpuscle                                       |
| EMAP:27932 | └ presumptive mesangium  |
| EMAP:27914 | └ visceral epithelium (syn: podocyte layer)  |
| EMAP:27944 | └ maturing renal corpuscle (syn: renal corpuscle of Stage IV nephron)              |
| EMAP:27950 | └ maturing glomerular tuft (syn: maturing glomerulus)                              |
| EMAP:27956 | └ glomerular capillary system of maturing glomerular tuft                          |
| EMAP:27962 | └ glomerular mesangium   |
| EMAP:27968 | └ visceral epithelium (syn: podocyte layer)  |
| EMAP:30966 | └ glomerular basement membrane   |
| EMAP:27974 | └ Bowman's capsule (syn: glomerular capsule)                                       |
| EMAP:27980 | └ parietal epithelium  |
| EMAP:27986 | └ urinary space of renal corpuscle (syn: Bowman's space)                           |
| EMAP:30032 | └ glomerular mesangium of Bowman's capsule   |
| EMAP:27992 | └ juxtaglomerular arteriole  |
| EMAP:27998 | └ cortical renal tubule  |
| EMAP:28004 | └ early proximal tubule  |
| EMAP:31708 | └ early proximal tubule of capillary loop nephron (syn: anlage of proximal tubule) |
| EMAP:31702 | └ early proximal tubule of maturing nephron  |
| EMAP:31282 | └ anlage of loop of Henle (syn: primitive loop of Henle)                           |
| EMAP:28008 | └ early distal tubule  |
| EMAP:31610 | └ early distal tubule of capillary loop nephron (syn: anlage of distal tubule)     |
| EMAP:31616 | └ early distal tubule of maturing nephron  |

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|            |  |  |  |  |   |
|------------|--|--|--|--|---|
| EMAP:28012 |  |  |  |  | └ renal connecting tubule   |
| EMAP:31622 |  |  |  |  | └ renal connecting tubule of capillary loop nephron                         |
| EMAP:31628 |  |  |  |  | └ renal connecting tubule of maturing nephron                               |
| EMAP:28131 |  |  |  |  | └ cortical collecting duct  |
| EMAP:28137 |  |  |  |  | └ renal cortical interstitium (syn: cortical stroma)                        |
| EMAP:31289 |  |  |  |  | └ renal cortical fibroblasts  |
| EMAP:31297 |  |  |  |  | └ resident macrophages of the cortex (syn: renal monocytes of the cortex)   |
| EMAP:31305 |  |  |  |  | └ rest of renal cortical interstitium                                       |
| EMAP:28030 |  |  |  |  | └ developing vasculature of cortex  |
| EMAP:28036 |  |  |  |  | └ arterial cortical vasculature   |
| EMAP:28038 |  |  |  |  | └ venous cortical vasculature   |
| EMAP:28040 |  |  |  |  | └ cortical capillary  |
| EMAP:28042 |  |  |  |  | └ renal medulla   |
| EMAP:28050 |  |  |  |  | └ immature loop of Henle (syn: anlagen of loop of Henle)                    |
| EMAP:31018 |  |  |  |  | └ straight limb   |
| EMAP:31022 |  |  |  |  | └ bend (syn: U-turn)  |
| EMAP:28062 |  |  |  |  | └ medullary collecting duct   |
| EMAP:6685  |  |  |  |  | └ renal medullary interstitium (syn: medullary stroma)                      |
| EMAP:31461 |  |  |  |  | └ renal medullary fibroblasts   |
| EMAP:31462 |  |  |  |  | └ resident macrophages of the medulla (syn: renal monocytes of the medulla) |
| EMAP:31463 |  |  |  |  | └ rest of renal medullary interstitium                                      |
| EMAP:28070 |  |  |  |  | └ developing vasculature of medulla   |
| EMAP:28072 |  |  |  |  | └ arterial medullary vasculature  |
| EMAP:28074 |  |  |  |  | └ venous medullary vasculature  |
| EMAP:28076 |  |  |  |  | └ medullary capillary   |
| EMAP:6677  |  |  |  |  | └ pelvis  |
| EMAP:28078 |  |  |  |  | └ pelvic urothelial lining (syn: pelvic urothelium)                         |
| EMAP:28084 |  |  |  |  | └ perihilar interstitium  |
| EMAP:28380 |  |  |  |  | └ renal artery  |
| EMAP:29997 |  |  |  |  | └ endothelium of renal artery   |
| EMAP:30005 |  |  |  |  | └ smooth muscle layer of renal artery                                       |
| EMAP:28384 |  |  |  |  | └ renal vein  |
| EMAP:30013 |  |  |  |  | └ endothelium of renal vein   |
| EMAP:30021 |  |  |  |  | └ smooth muscle layer of renal vein   |
| EMAP:6679  |  |  |  |  | └ ureter  |
| EMAP:28090 |  |  |  |  | └ urothelium (syn: transitional epithelium)                                 |
| EMAP:28590 |  |  |  |  | └ superficial cellular layer (syn: umbrella cell)                           |
| EMAP:28102 |  |  |  |  | └ deep cellular layer (syn: basal urothelium)                               |
| EMAP:28558 |  |  |  |  | └ ureteral mesenchyme   |
| EMAP:28564 |  |  |  |  | └ subepithelial layer (syn: presumptive lamina propria)                     |
| EMAP:28569 |  |  |  |  | └ middle layer (syn: presumptive ureteral smooth muscle layer)              |
| EMAP:28572 |  |  |  |  | └ outer layer (syn: presumptive adventitia)                                 |
| EMAP:30853 |  |  |  |  | └ ureteral vasculature  |
| EMAP:6668  |  |  |  |  | └ bladder   |
| EMAP:28602 |  |  |  |  | └ epithelium of bladder (syn: urothelium)                                   |
| EMAP:28608 |  |  |  |  | └ epithelium of fundus  |
| EMAP:28614 |  |  |  |  | └ epithelium of trigone   |
| EMAP:30082 |  |  |  |  | └ epithelium of neck  |
| EMAP:30089 |  |  |  |  | └ lamina propria of the bladder   |
| EMAP:30103 |  |  |  |  | └ lamina propria of fundus  |
| EMAP:30110 |  |  |  |  | └ lamina propria of trigone   |
| EMAP:30117 |  |  |  |  | └ lamina propria of neck  |
| EMAP:28620 |  |  |  |  | └ muscularis mucosa of bladder  |
| EMAP:28626 |  |  |  |  | └ muscularis mucosa of fundus   |
| EMAP:28632 |  |  |  |  | └ muscularis mucosa of trigone  |
| EMAP:30138 |  |  |  |  | └ muscularis mucosa of neck   |
| EMAP:28638 |  |  |  |  | └ detrusor muscle of bladder  |
| EMAP:28644 |  |  |  |  | └ detrusor muscle of fundus   |
| EMAP:28650 |  |  |  |  | └ detrusor muscle of trigone  |
| EMAP:30124 |  |  |  |  | └ detrusor muscle of neck   |
| EMAP:28662 |  |  |  |  | └ serosa of bladder   |
| EMAP:28668 |  |  |  |  | └ serosa of fundus  |
| EMAP:28674 |  |  |  |  | └ serosa of trigone   |
| EMAP:30131 |  |  |  |  | └ serosa of neck  |





**TS22 Groups**

'G' : Term is a group.

|            |       |  |  |  |  |
|------------|-------|--|--|--|--|
| EMAP:25787 | mouse |  |  |  |  |
| EMAP:5720  |       |  |  |  | organ system   |
| EMAP:5721  |       |  |  |  | └ visceral organ   |
| EMAP:6667  |       |  |  |  | └ urinary system   |
| EMAP:6674  |       |  |  |  | └ metanephros (syn: kidney)  |
| EMAP:6681  |       |  |  |  | └ renal cortex   |
| EMAP:27998 |       |  |  |  | └ cortical renal tubule  |
| EMAP:31819 | G     |  |  |  | └ cortical renal tubule of capillary loop nephron GROUP                            |
| EMAP:31282 |       |  |  |  | └ anlage of loop of Henle (syn: primitive loop of Henle)                           |
| EMAP:31610 |       |  |  |  | └ early distal tubule of capillary loop nephron (syn: anlage of distal tubule)     |
| EMAP:31708 |       |  |  |  | └ early proximal tubule of capillary loop nephron (syn: anlage of proximal tubule) |
| EMAP:31622 |       |  |  |  | └ renal connecting tubule of capillary loop nephron                                |
| EMAP:31813 | G     |  |  |  | └ cortical renal tubule of maturing nephron GROUP                                  |
| EMAP:31616 |       |  |  |  | └ early distal tubule of maturing nephron  |
| EMAP:31702 |       |  |  |  | └ early proximal tubule of maturing nephron  |
| EMAP:31628 |       |  |  |  | └ renal connecting tubule of maturing nephron                                      |
| EMAP:28501 | G     |  |  |  | └ early tubule   |
| EMAP:27830 |       |  |  |  | └ renal vesicle (syn: epithelial vesicle; stage I nephron)                         |
| EMAP:31694 |       |  |  |  | └ renal connecting segment of renal vesicle  |
| EMAP:31725 |       |  |  |  | └ distal renal vesicle   |
| EMAP:31719 |       |  |  |  | └ proximal renal vesicle   |
| EMAP:27836 |       |  |  |  | └ comma-shaped body  |
| EMAP:27842 |       |  |  |  | └ upper limb of comma-shaped body (syn: distal limb of comma-shaped body)          |
| EMAP:27848 |       |  |  |  | └ lower limb of comma-shaped body (syn: proximal limb of comma-shaped body)        |
| EMAP:31711 |       |  |  |  | └ renal connecting segment of comma-shaped body                                    |
| EMAP:27854 |       |  |  |  | └ s-shaped body (syn: stage II nephron)  |
| EMAP:27866 |       |  |  |  | └ renal connecting tubule of s-shaped body   |
| EMAP:27872 |       |  |  |  | └ distal segment of s-shaped body (syn: upper limb of s-shaped body)               |
| EMAP:27878 |       |  |  |  | └ medial segment of s-shaped body (syn: mid-portion of s-shaped body)              |
| EMAP:27884 |       |  |  |  | └ proximal segment of s-shaped body (syn: lower limb of s-shaped body)             |
| EMAP:27896 |       |  |  |  | └ visceral epithelium  |
| EMAP:27902 |       |  |  |  | └ parietal epithelium  |
| EMAP:28507 | G     |  |  |  | └ developing capillary loop stage nephron GROUP (syn: stage III nephron)           |
| EMAP:27908 |       |  |  |  | └ capillary loop renal corpuscle (syn: renal corpuscle of the stage III nephron)   |
| EMAP:27926 |       |  |  |  | └ associated interstitium of renal corpuscle                                       |
| EMAP:27920 |       |  |  |  | └ parietal epithelium  |
| EMAP:27938 |       |  |  |  | └ presumptive endothelium of renal corpuscle                                       |
| EMAP:27932 |       |  |  |  | └ presumptive mesangium  |
| EMAP:27914 |       |  |  |  | └ visceral epithelium (syn: podocyte layer)  |
| EMAP:27998 |       |  |  |  | └ cortical renal tubule  |
| EMAP:28004 |       |  |  |  | └ early proximal tubule  |
| EMAP:31708 |       |  |  |  | └ early proximal tubule of capillary loop nephron (syn: anlage of proximal tubule) |
| EMAP:31702 |       |  |  |  | └ early proximal tubule of maturing nephron  |
| EMAP:31282 |       |  |  |  | └ anlage of loop of Henle (syn: primitive loop of Henle)                           |
| EMAP:28008 |       |  |  |  | └ early distal tubule  |
| EMAP:31610 |       |  |  |  | └ early distal tubule of capillary loop nephron (syn: anlage of distal tubule)     |
| EMAP:31616 |       |  |  |  | └ early distal tubule of maturing nephron  |
| EMAP:28012 |       |  |  |  | └ renal connecting tubule  |
| EMAP:31622 |       |  |  |  | └ renal connecting tubule of capillary loop nephron                                |
| EMAP:31628 |       |  |  |  | └ renal connecting tubule of maturing nephron                                      |
| EMAP:31819 |       |  |  |  | └ cortical renal tubule of capillary loop nephron GROUP                            |
| EMAP:31282 |       |  |  |  | └ anlage of loop of Henle (syn: primitive loop of Henle)                           |
| EMAP:31610 |       |  |  |  | └ early distal tubule of capillary loop nephron (syn: anlage of distal tubule)     |
| EMAP:31708 |       |  |  |  | └ early proximal tubule of capillary loop nephron (syn: anlage of proximal tubule) |
| EMAP:31622 |       |  |  |  | └ renal connecting tubule of capillary loop nephron                                |
| EMAP:31813 |       |  |  |  | └ cortical renal tubule of maturing nephron GROUP                                  |





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|             |   |  |  |  |  |   |
|-------------|---|--|--|--|--|---|
| EMAP: 31622 |   |  |  |  |  | └─┬ renal connecting tubule of capillary loop nephron                         |
| EMAP: 31813 |   |  |  |  |  | └─┬ cortical renal tubule of maturing nephron GROUP                           |
| EMAP: 31616 |   |  |  |  |  | └─┬ early distal tubule of maturing nephron                                   |
| EMAP: 31702 |   |  |  |  |  | └─┬ early proximal tubule of maturing nephron                                 |
| EMAP: 31628 |   |  |  |  |  | └─┬ renal connecting tubule of maturing nephron                               |
| EMAP: 28050 |   |  |  |  |  | └─┬ immature loop of Henle (syn: anlagen of loop of Henle)                    |
| EMAP: 31018 |   |  |  |  |  | └─┬ straight limb   |
| EMAP: 31022 |   |  |  |  |  | └─┬ bend (syn: U-turn)  |
| EMAP: 31415 |   |  |  |  |  | └─┬ medullary renal tubule  |
| EMAP: 31018 |   |  |  |  |  | └─┬ straight limb   |
| EMAP: 31022 |   |  |  |  |  | └─┬ bend (syn: U-turn)  |
| EMAP: 6678  | G |  |  |  |  | └─ collecting duct (syn: ureteric tree)                                       |
| EMAP: 27751 |   |  |  |  |  | └─┬ ureteric tip (syn: ureteric ampulla)                                      |
| EMAP: 31047 |   |  |  |  |  | └─┬ ureteric tree terminal branch excluding tip itself                        |
| EMAP: 28495 |   |  |  |  |  | └─┬ ureteric trunk  |
| EMAP: 28131 |   |  |  |  |  | └─┬ cortical collecting duct  |
| EMAP: 28062 |   |  |  |  |  | └─┬ medullary collecting duct   |
| EMAP: 28495 | G |  |  |  |  | └─ ureteric trunk   |
| EMAP: 28131 |   |  |  |  |  | └─┬ cortical collecting duct  |
| EMAP: 28062 |   |  |  |  |  | └─┬ medullary collecting duct   |
| EMAP: 28519 | G |  |  |  |  | └─┬ renal interstitium group  |
| EMAP: 27730 |   |  |  |  |  | └─┬ nephrogenic interstitium (syn: peripheral blastema)                       |
| EMAP: 27926 |   |  |  |  |  | └─┬ associated interstitium of renal corpuscle                                |
| EMAP: 27932 |   |  |  |  |  | └─┬ presumptive mesangium   |
| EMAP: 27962 |   |  |  |  |  | └─┬ glomerular mesangium  |
| EMAP: 28137 |   |  |  |  |  | └─┬ renal cortical interstitium (syn: cortical stroma)                        |
| EMAP: 31289 |   |  |  |  |  | └─┬ renal cortical fibroblasts  |
| EMAP: 31297 |   |  |  |  |  | └─┬ resident macrophages of the cortex (syn: renal monocytes of the cortex)   |
| EMAP: 31305 |   |  |  |  |  | └─┬ rest of renal cortical interstitium                                       |
| EMAP: 6685  |   |  |  |  |  | └─ renal medullary interstitium (syn: medullary stroma)                       |
| EMAP: 31461 |   |  |  |  |  | └─┬ renal medullary fibroblasts   |
| EMAP: 31462 |   |  |  |  |  | └─┬ resident macrophages of the medulla (syn: renal monocytes of the medulla) |
| EMAP: 31463 |   |  |  |  |  | └─┬ rest of renal medullary interstitium                                      |
| EMAP: 28084 |   |  |  |  |  | └─┬ perihilar interstitium  |
| EMAP: 31770 | G |  |  |  |  | └─ developing vasculature of urinary system GROUP                             |
| EMAP: 28459 |   |  |  |  |  | └─ renal vasculature  |
| EMAP: 27956 |   |  |  |  |  | └─┬ glomerular capillary system of maturing glomerular tuft                   |
| EMAP: 27992 |   |  |  |  |  | └─┬ juxtaglomerular arteriole   |
| EMAP: 27938 |   |  |  |  |  | └─┬ presumptive endothelium of renal corpuscle                                |
| EMAP: 28380 |   |  |  |  |  | └─ renal artery   |
| EMAP: 29997 |   |  |  |  |  | └─┬ endothelium of renal artery   |
| EMAP: 30005 |   |  |  |  |  | └─┬ smooth muscle layer of renal artery                                       |
| EMAP: 28384 |   |  |  |  |  | └─ renal vein   |
| EMAP: 30013 |   |  |  |  |  | └─┬ endothelium of renal vein   |
| EMAP: 30021 |   |  |  |  |  | └─┬ smooth muscle layer of renal vein   |
| EMAP: 28030 |   |  |  |  |  | └─ developing vasculature of cortex   |
| EMAP: 28036 |   |  |  |  |  | └─┬ arterial  |
| EMAP: 28038 |   |  |  |  |  | └─┬ venous  |
| EMAP: 28040 |   |  |  |  |  | └─┬ capillary   |
| EMAP: 28070 |   |  |  |  |  | └─┬ developing vasculature of medulla   |
| EMAP: 28072 |   |  |  |  |  | └─┬ arterial  |
| EMAP: 28074 |   |  |  |  |  | └─┬ venous  |
| EMAP: 28076 |   |  |  |  |  | └─┬ capillary   |
| EMAP: 30853 |   |  |  |  |  | └─┬ ureteral vasculature  |
| EMAP: 28459 | G |  |  |  |  | └─ renal vasculature  |
| EMAP: 27956 |   |  |  |  |  | └─┬ glomerular capillary system of maturing glomerular tuft                   |
| EMAP: 27992 |   |  |  |  |  | └─┬ juxtaglomerular arteriole   |
| EMAP: 27938 |   |  |  |  |  | └─┬ presumptive endothelium of renal corpuscle                                |
| EMAP: 28380 |   |  |  |  |  | └─ renal artery   |
| EMAP: 29997 |   |  |  |  |  | └─┬ endothelium of renal artery   |
| EMAP: 30005 |   |  |  |  |  | └─┬ smooth muscle layer of renal artery                                       |
| EMAP: 28384 |   |  |  |  |  | └─ renal vein   |
| EMAP: 30013 |   |  |  |  |  | └─┬ endothelium of renal vein   |
| EMAP: 30021 |   |  |  |  |  | └─┬ smooth muscle layer of renal vein   |



