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> # load human reference genome hg38
> library(TxDb.Hsapiens.UCSC.hg38.knownGene)
>
> # assign hg38 to hg, then print it
> hg <- TxDb.Hsapiens.UCSC.hg38.knownGene
> hg
TxDb object:
# Db type: TxDb
# Supporting package: GenomicFeatures
# Data source: UCSC
# Genome: hg38
# Organism: Homo sapiens
# Taxonomy ID: 9606
# UCSC Table: knownGene
# UCSC Track: GENCODE v24
# Resource URL: http://genome.ucsc.edu/
# Type of Gene ID: Entrez Gene ID
# Full dataset: yes
# miRBase build ID: NA
# transcript_nrow: 197782
# exon_nrow: 581036
# cds_nrow: 293052
# Db created by: GenomicFeatures package from Bioconductor
# Creation time: 2016-09-29 13:02:09 +0000 (Thu, 29 Sep 2016)
# GenomicFeatures version at creation time: 1.25.18
# RSQLite version at creation time: 1.0.0
# DBSCHEMAVERSION: 1.1
>
> # filter 1: extract all the genes in chromosome X as hg_chrXg, then print it
> hg_chrXg <- genes(hg, filter = list(tx_chrom = c("chrX")))
> hg_chrXg
GRanges object with 983 ranges and 1 metadata column:
      seqnames      ranges strand |  gene_id
      <Rle>        <IRanges> <Rle> | <character>
10009  chrX [120250752, 120258398] + | 10009
100093698 chrX [13310652, 13319933] + | 100093698
100124540 chrX [47388649, 47388777] + | 100124540
100126270 chrX [147909431, 147911817] - | 100126270
100126302 chrX [134540161, 134540272] - | 100126302
... ..
9823  chrX [101655281, 101659891] - | 9823
9843  chrX [66162549, 66268867] + | 9843
9947  chrX [141903894, 141909388] + | 9947

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9949 chrX [110194186, 110440233] - | 9949
9968 chrX [ 71118556, 71142454] + | 9968
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seqinfo: 455 sequences (1 circular) from hg38 genome

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> # filter 2: extract all positive stranded genes in chromosome X as hg\_chrXgp, then sort it

> hg\_chrXgp <- genes(hg, filter = list(tx\_chrom = c("chrX"), tx\_strand = "+"))

> sort(hg\_chrXgp)

GRanges object with 533 ranges and 1 metadata column:

	seqnames	ranges	strand	gene_id
	<Rle>	<IRanges>	<Rle>	<character>
55344	chrX	[ 276322, 303356]	+	55344
6473	chrX	[ 624344, 659411]	+	6473
1438	chrX	[1268800, 1310381]	+	1438
100500894	chrX	[1293918, 1293992]	+	100500894
3563	chrX	[1336616, 1382689]	+	3563
...	...	...	...	...
100302111	chrX	[155457517, 155457615]	+	100302111
100507404	chrX	[155466540, 155611616]	+	100507404
10251	chrX	[155767812, 155782459]	+	10251
6845	chrX	[155881293, 155943769]	+	6845
3581	chrX	[155997581, 156022236]	+	3581

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