**Methods**

The Aladdin RNAseq pipeline was originally adapted from nf-core/rnaseq pipeline v1.4.2 (<https://github.com/nf-core/rnaseq>).1 The pipelines was built using Nextflow (<https://www.nextflow.io/>).2 Briefly, quality control of raw reads was carried out using FastQC v0.11.9 (<http://www.bioinformatics.babraham.ac.uk/projects/fastqc>). Adapter and low-quality sequences were trimmed from raw reads using Trim Galore! v0.6.6 (<https://www.bioinformatics.babraham.ac.uk/projects/trim_galore>). Trimmed reads were aligned to the reference genome using STAR v2.6.1d (<https://github.com/alexdobin/STAR>).3 BAM file filtering and indexing was carried out using SAMtools v1.9 (https://github.com/samtools/samtools).4 RNAseq library quality control was implemented using RSeQC v4.0.0 (<http://rseqc.sourceforge.net/>)5 and QualiMap v2.2.2-dev (<http://qualimap.conesalab.org/>)6. Duplicate reads were marked using Picard tools v2.23.9 (<http://broadinstitute.github.io/picard/>)7. Library complexity was estimated using Preseq v2.0.3 ([https://github.com/smithlabcode/preseqhttps://github.com/smithlabcode/preseq](https://github.com/smithlabcode/preseq)).8 Duplication rate quality control was performed using dupRadar v1.18.0 (<https://bioconductor.org/packages/dupRadar/>).9 Reads overlapping

with exons were assigned to genes using featureCounts v2.0.1 (<http://bioinf.wehi.edu.au/featureCounts/>).10 Classification of rRNA genes/exons and their reads were based on annotations and RepeatMasker rRNA tracks from UCSC genome browser when applicable. Differential gene expression analysis was completed using DESeq2 v1.28.0 (<https://bioconductor.org/packages/DESeq2/>).11 Functional enrichment analysis was achieved using g:Profiler python API v1.0.0 (https://biit.cs.ut.ee/gprofiler/gost).12 Quality control and analysis results plots were visualized using MultiQC v1.9 (<https://github.com/ewels/MultiQC>).13

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