The mammalian transcriptome is complex. By recent estimates, et al (Kwan et al., 2007; Zhang et al., 2008; Thorsen et al., 2008), genetic variation (Wang, et al., 2008). Alternative splicing is consequential as well as frequent, with effects ranging from altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering protein structure to altering 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For contrast, Figure 1b shows an unannotated conserved region on chromosome 1 in mm9. While it does not overlap with any known gene, its red (up-regulated) log intensity in brain suggests brain-specific expression. This illustrates how this data can offer insights on regions with no annotation but strong conservation.

3 CONCLUSION

The Affy Exon Tissues track displays exon probeset intensities in human, mouse, and rat tissues, including breast, cerebellum, heart, kidney, liver, muscle, pancreas, prostate, spleen, testes, and thyroid. In contrast to traditional microarray tracks such as the GNF Expression Atlas (Su et al., 2004), which provide one measure of overall expression per gene and cannot report any transcript variation, the Affy Exon Tissues track offers the ability to compare intensities of neighboring probesets and observe alternative promoter usage, polyadenylation, and splicing.

Exon probeset intensities are rendered as heat maps to offer rapid visual identification of exons that vary under normal cellular conditions.

Besides the Affy Exon Tissues track, the UCSC Genome Browser currently hosts the hg18 Sestan Brain exon expression track, which contrasts exon probeset intensities between sections of the brain (Johnson et al., 2009). This set of tracks may expand further as additional datasets become available, offering further insights into transcript variation in the mammalian genomes.

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REFERENCES