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**Transcriptional activity of repetitive DNA families in the beetle *Tribolium castaneum***Sermek Antonio<sup>1</sup>, Feliciello Isidoro<sup>1,2</sup>, Ugarković Đurđica<sup>1\*</sup><sup>1</sup> Department of Molecular Biology, Ruđer Bošković Institute, Bijenička 54, HR-10000 Zagreb, Croatia<sup>2</sup> Dipartimento di Medicina Clinica e Chirurgia, Università degli Studi di Napoli Federico II, via Pansini 5, I-80131 Napoli, Italy

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Satellite DNAs are tandemly repeated sequences clustered within heterochromatin. However, in some cases such as the major TCAST1 satellite DNA from the beetle *Tribolium castaneum*, they are found partially dispersed within euchromatin. Such organization together with transcriptional activity enables TCAST1 to modulate the activity of neighbouring genes and plays a role in heterochromatin remodelling during development and environmental stress response. In order to explore if other *T. castaneum* repetitive families have features which could provide them with a possible gene-modulatory role we analyse here transcription activity of ten distinct TCAST families. Transcriptome sequencing (RNA-seq) was performed on total RNA extracted from adult *T. castaneum* grown at 25°C as well as from adults subjected to 24 h heat stress at 42°C, with 30 min and 1 h of recovery, respectively. For oocytes and embryos we used publicly available dataset (SRA accession number: SRP050428). After sequencing, adapters and low quality reads were removed and mapped using Bowtie2 to dimers of repetitive families. Normalization method used was fragments per kb of transcript per million mapped reads (FPKM) which we calculated manually. Results from RNA-seq were confirmed by qPCR. Our study reveals that low copy TCAST repetitive families, partially dispersed within euchromatin, are transcribed. Their transcriptional activity is increased after heat stress and differs among stages of embryogenesis.