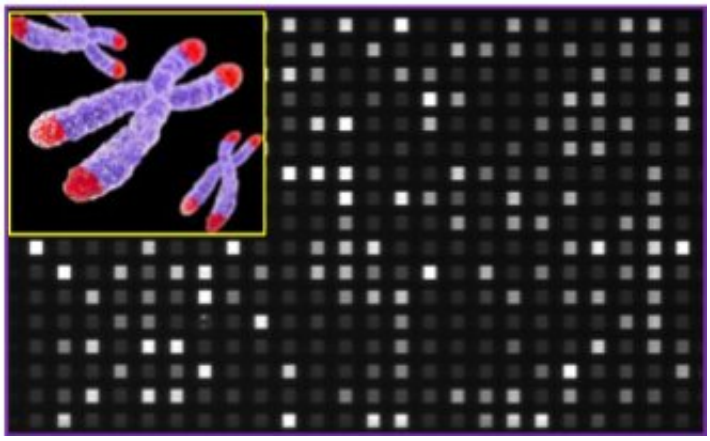
Researchers develop new system to conduct accurate telomere profiling in less than 3 hours

August 25 2020



A magnified image captured by the device used to perform STAR assay. Different fluorescent intensities reflect the length variations in individual telomere molecules. Credit: National University of Singapore

The plastic tips attached to the ends of shoelaces keep them from fraying. Telomeres are repetitive DNA (deoxyribonucleic acid) sequences that serve a similar function at the end of chromosomes, protecting its accompanying genetic material against genome instability, preventing cancers and regulating the aging process.

Each time a cell divides in our body, the telomeres shorten, thus functioning like a molecular "clock" of the cell as the shortening

increases progressively with aging. An accurate measure of the quantity and length of these telomeres, or "clocks," can provide vital information if a cell is aging normally, or abnormally, as in the case of cancer.

To come up with an innovative way to diagnose telomere abnormalities, a research team led by Assistant Professor Cheow Lih Feng from the NUS Institute for Health Innovation & Technology (iHealthtech) has developed a novel method to measure the absolute telomere length of individual telomeres in less than three hours. This unique telomere profiling method can process up to 48 samples from low amounts (