

# Nucleic Acid Binding Proteins (Romanesco/ChrocodiLE)

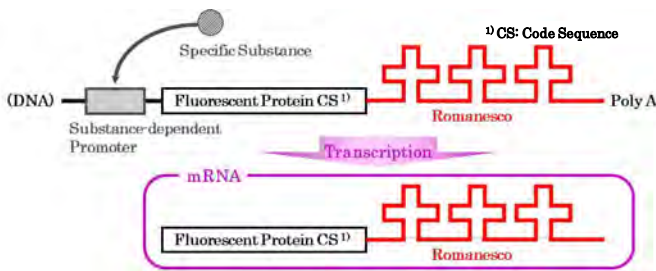
## KEY INVENTION

- ◎ Romanesco is induced to the target promoter to visualize the dynamics of mRNA in living cells.
- ◎ ChrocodiLE sequence-independently binds to DNA in the open state to track the change of the genome 3D Structure over time in living cells.

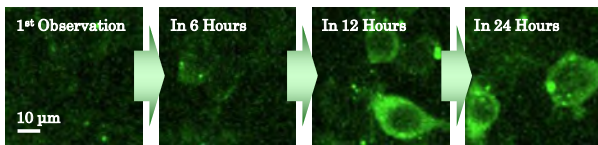
**The dynamics of nucleic acids (DNA and mRNA)  
can be visualized in living cells.**

## SUMMARY of INVENTION

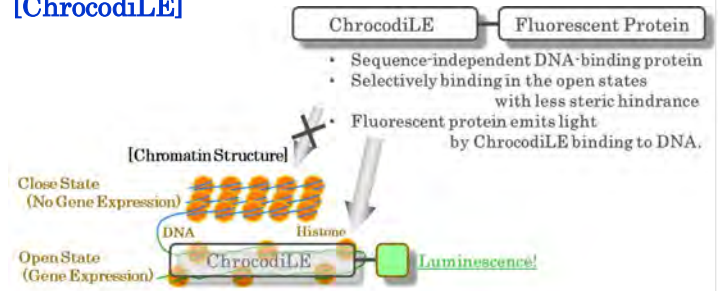
### [Romanesco]



(Imaging of Transcriptional Dynamics in Cells)



### [ChrocodiLE]



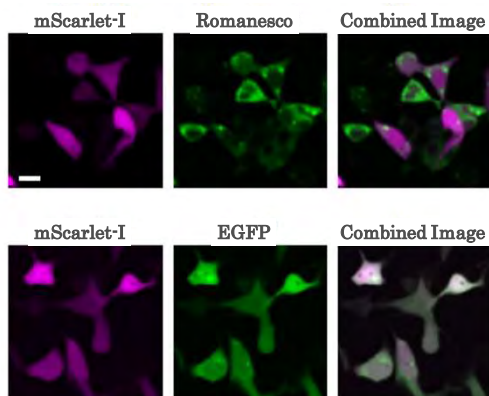
(An Observation of Knock-in Mouse Tissues)



## COMPARISON with and ADVANTAGE over CURRENT TECHNOLOGIES

### [Romanesco]

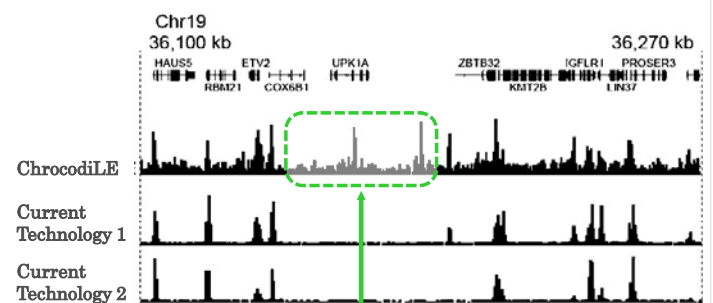
Fluorescence intensity is 300 times higher than Broccoli, and transcriptional activity can be analyzed by simultaneous measurement of protein and mRNA.



### [ChrocodiLE]

The sequences in the open state regions that could not be observed by current techniques can be observed.

[Genome Sequence Analysis by DNA Sequencer]



The sequences in the open state regions that could not be observed by current techniques

## APPLICATION expected

- ◎ Probes for tracking the internal behavior of drug-responsive genes (drug-metabolizing enzymes, etc.)
- ◎ Analysis of genes expressed in living cells during neuronal differentiation and neuronal repair in specific neural tissues
- ◎ Imaging of genes expressed in specific diseases (cancer, diabetes, Alzheimer's disease, etc.) in live cells

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URL) [www.jst.go.jp/chizai/](http://www.jst.go.jp/chizai/)

### Licensable Patents (Title of Invention - International Publication No.)

- ◎ Romanesco : Fluorogenic Nucleic Acid Molecule and Target RNA Fluorescent Labeling Method - WO2020116446
- ◎ ChrocodiLE : Nucleic Acid Binding Proteins - WO2020209332

