# An integrated pipeline for low input epigenome profiling

Here I listed the technical development side of my PhD work, which is to create an integrated pipeline for low input epigenome profiling for biologist. This pipeline contains two parts: one is wet lab protocol package SmallCell, which enables researchers to profiling transcriptome and epigenome from ~1000~2000 cells; the other part is the dry lab code package InterSeq, which enables intersect different types of sequencing data based on their distribution pattern.

## SmallCell

A wet lab bench protocol package for profiling transcriptome and epignenome from low input materials.

To see a detailed description, go to https://github.com/sheng-liu/SmallCell/blob/master/SmallCell.md

SmallCell-suit is a wet lab bench protocol package for profiling transcriptome and epigenomic information, namely histone modification and DNA methylation, from 1000~2000 cells. It is designed for surveying epigenetic information of rare cell populations in vivo at locus-specific and genome-wide scales.

Individual protocol can be accessed from:

* Low input chromatin immunoprecipitation (ChIP) with smallcellChIP

<https://github.com/sheng-liu/smallcellChIP.git>

* Low input RNA isolation and reverse transcription with smallcellRNA

<https://github.com/sheng-liu/smallcellRNA.git>

* Low input bisulfite conversion and Sanger Sequencing with smallcellDNAme

<https://github.com/sheng-liu/smallcellDNAme.git>

## InterSeq

A bioinformatic tool for intersecting multiple types of epigenomic datasets.

To see a detailed description, go to https://github.com/sheng-liu/InterSeq/blob/wiki/ProjectHome.md

Individual package can be accessed from:

* Calculations from a bam file with SeqData

<https://github.com/sheng-liu/SeqData.git>

* Interface tables to flowCore with SeqFrame

<https://github.com/sheng-liu/SeqFrame.git>

* Graphical interface for visualization and gating with SeqViz

<https://github.com/sheng-liu/SeqViz.git>

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|  | Package names |  |
| SmallCell | smallcellChIP  smallcellRNA  smallcellDNAme |  |
| InterSeq | SeqData  SeqFrame  SeqViz |  |
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