

Isolation of primary bovine preadipocytes and screening of microRNAs associated with proliferation and adipogenesis

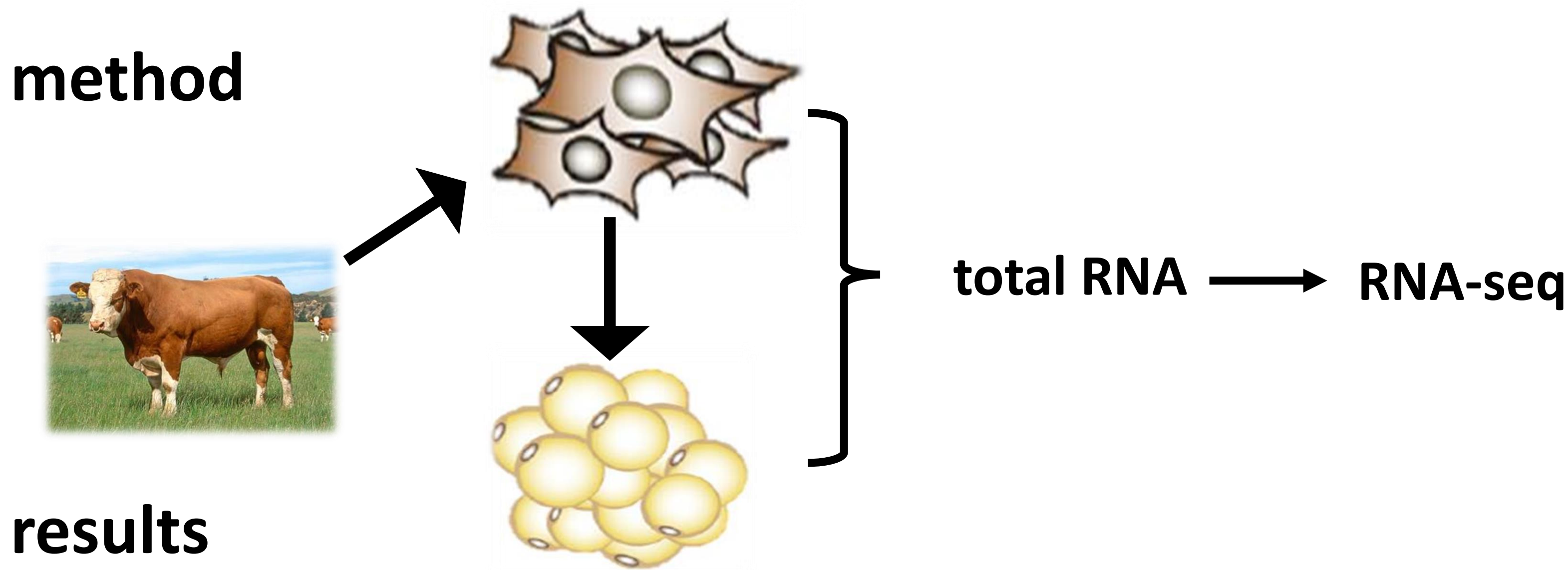
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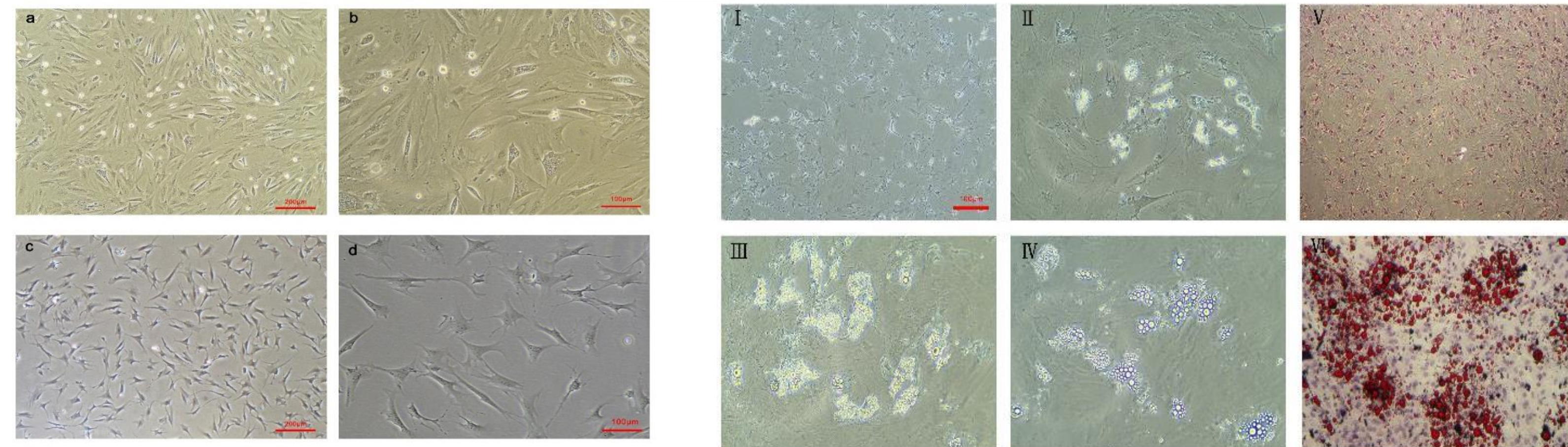
Acknowledgements

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method

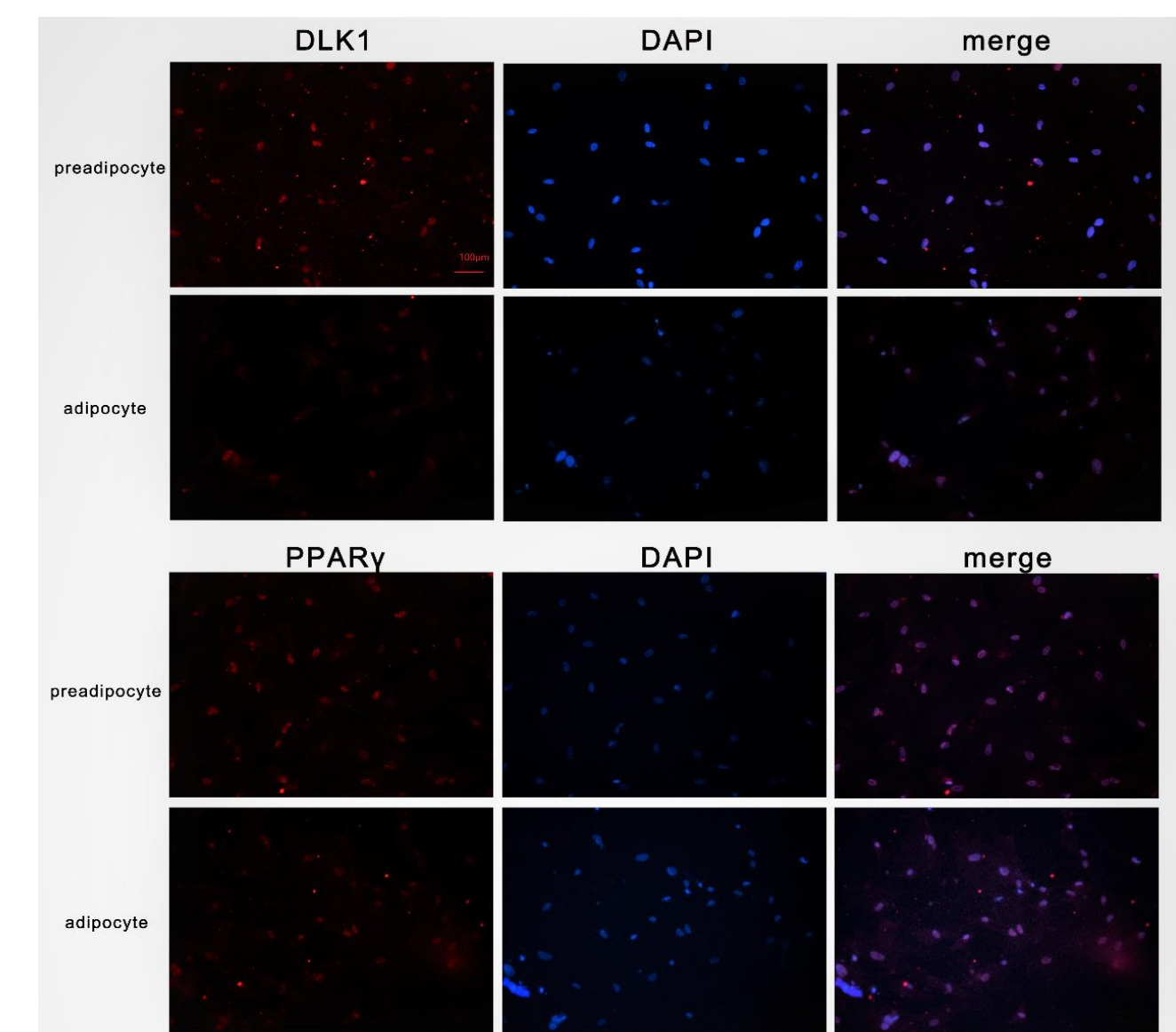


results

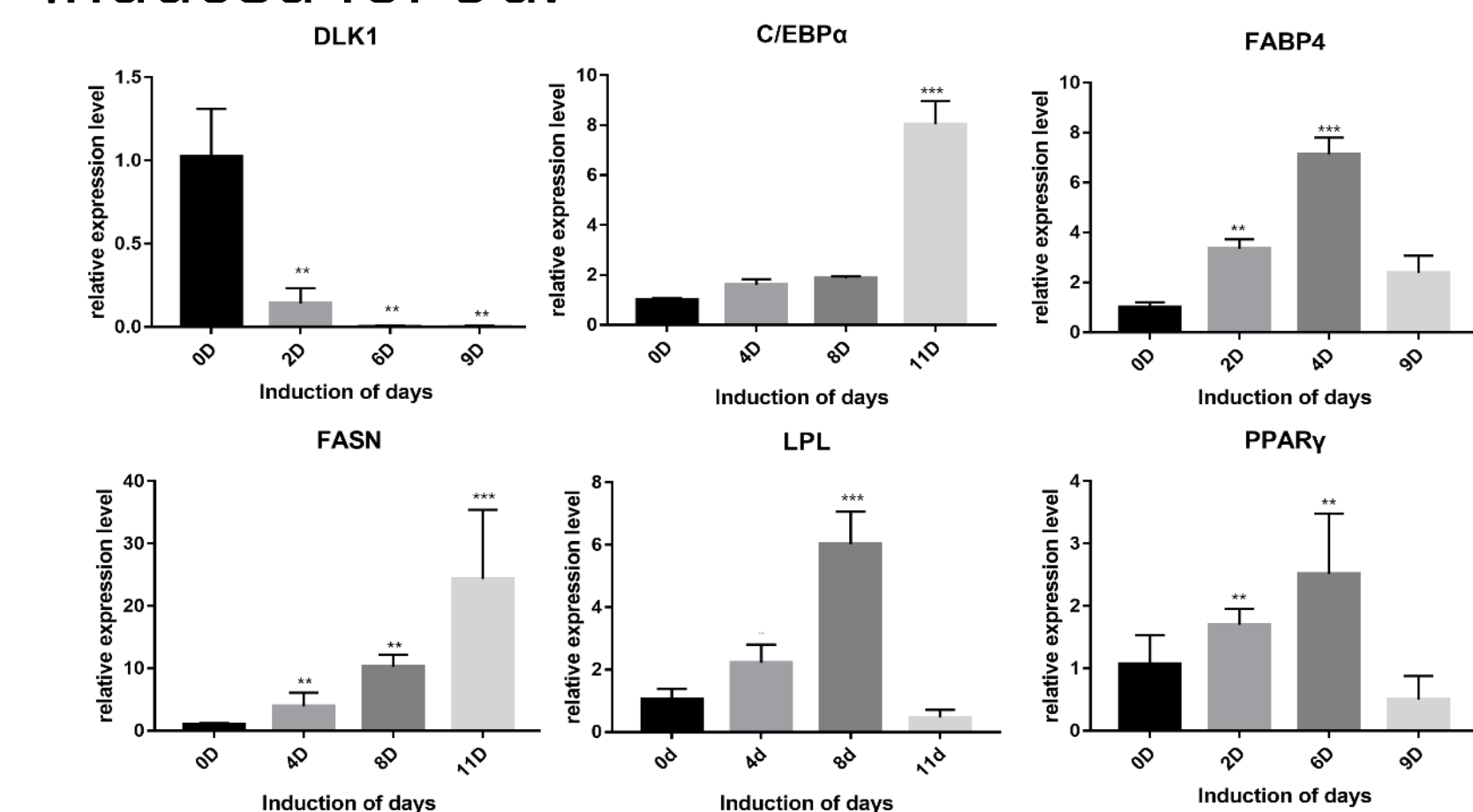


a, b: enzyme digestion method;
c, d: explant method.

I: 2d of differentiation; II: 6d of differentiation; III: 9d of differentiation; IV: 11d of differentiation; V: Oli Red O stain of control group; VI: Oli Red O stain of cells induced for 9d.

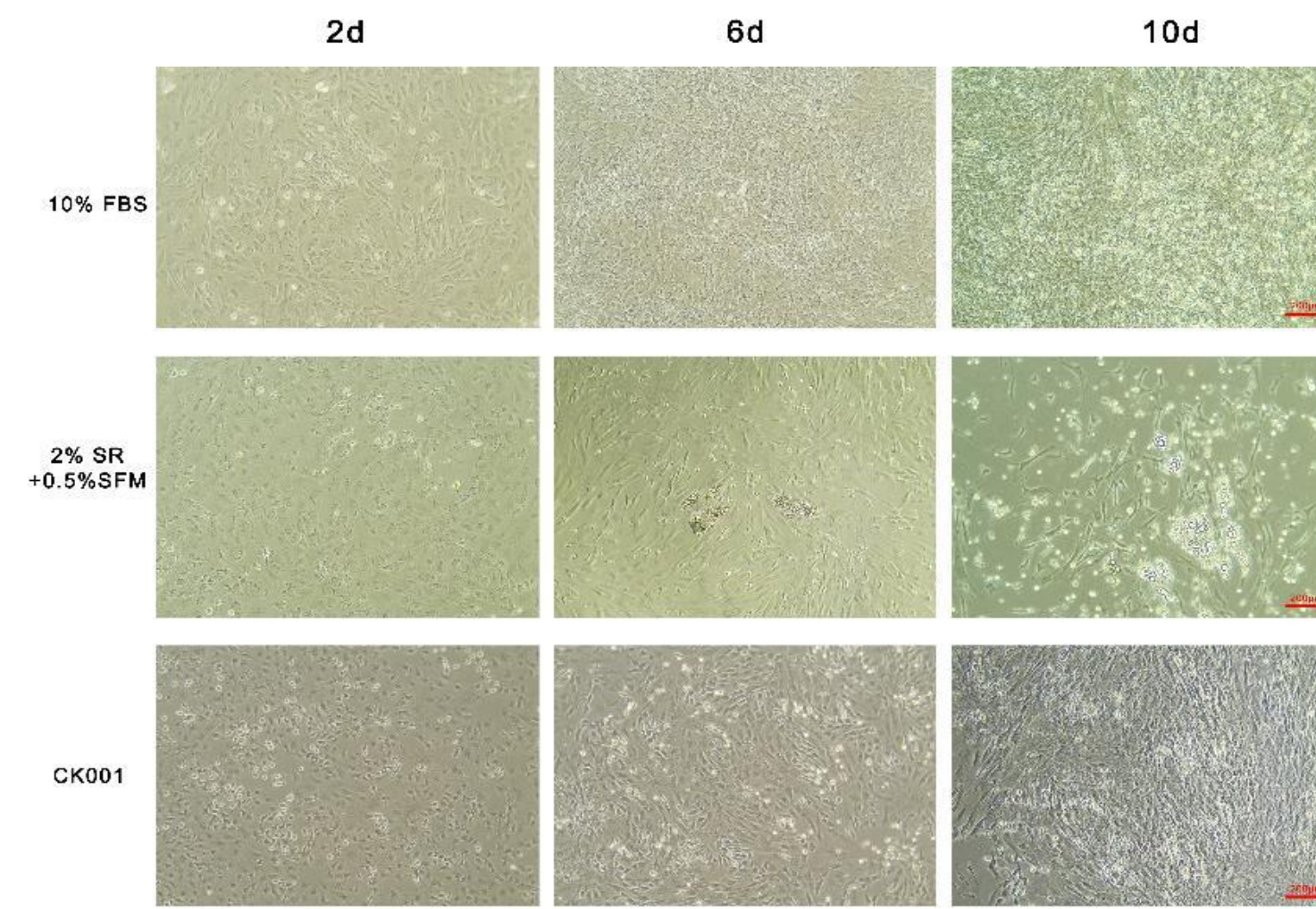


Immunofluorescence staining



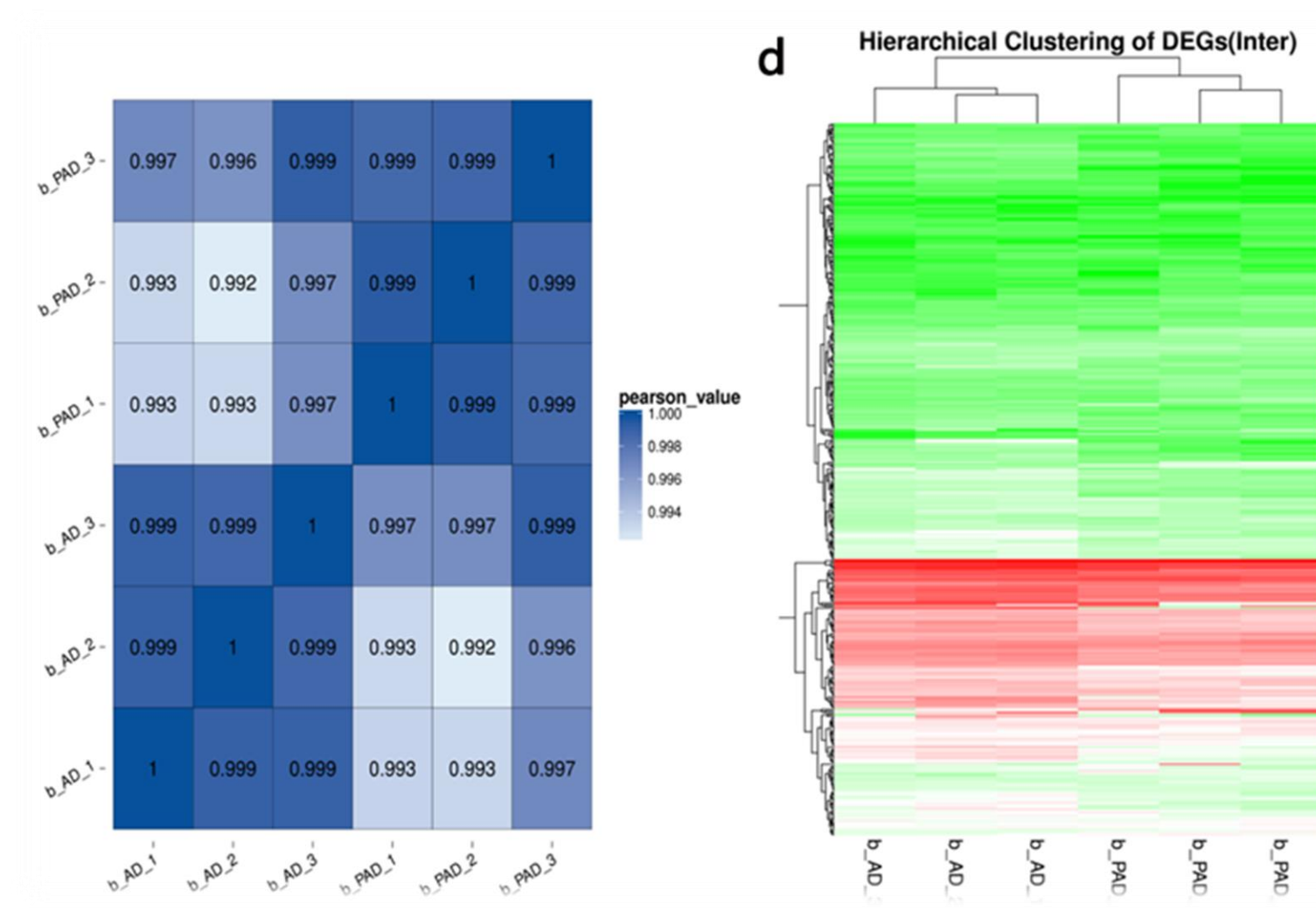
adipogenic genes expression

Bovine preadipocytes were separated successfully. And the preadipocytes have the potential to differentiate into mature adipocytes



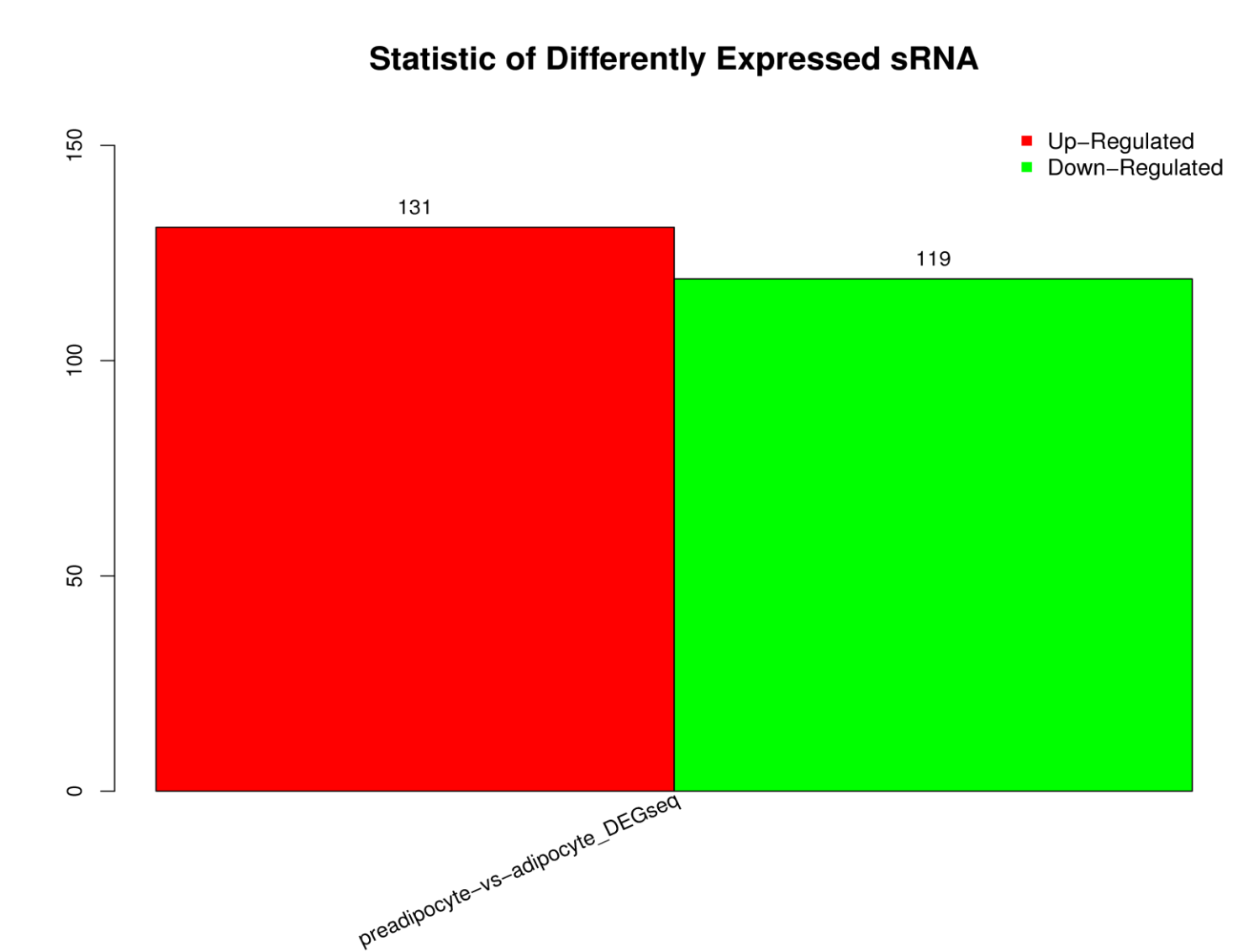
Induction efficiency of precursor adipocytes in different media

Using different conditions to induce cells, the optimal induction condition is: 10 μ g/mL insulin, 0.5 mM IBMX, 1.0 μ M dexamethasone, 0.5 μ M rosiglitazone, medium with 2% SR and 0.5% SFM.

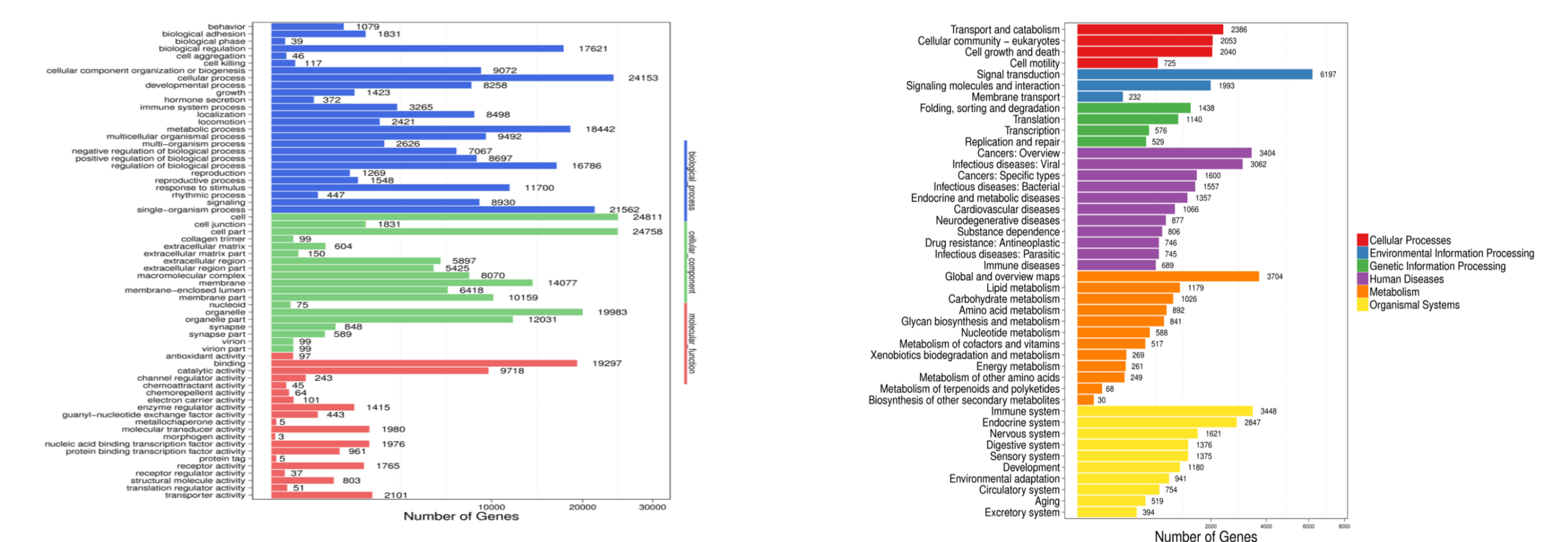
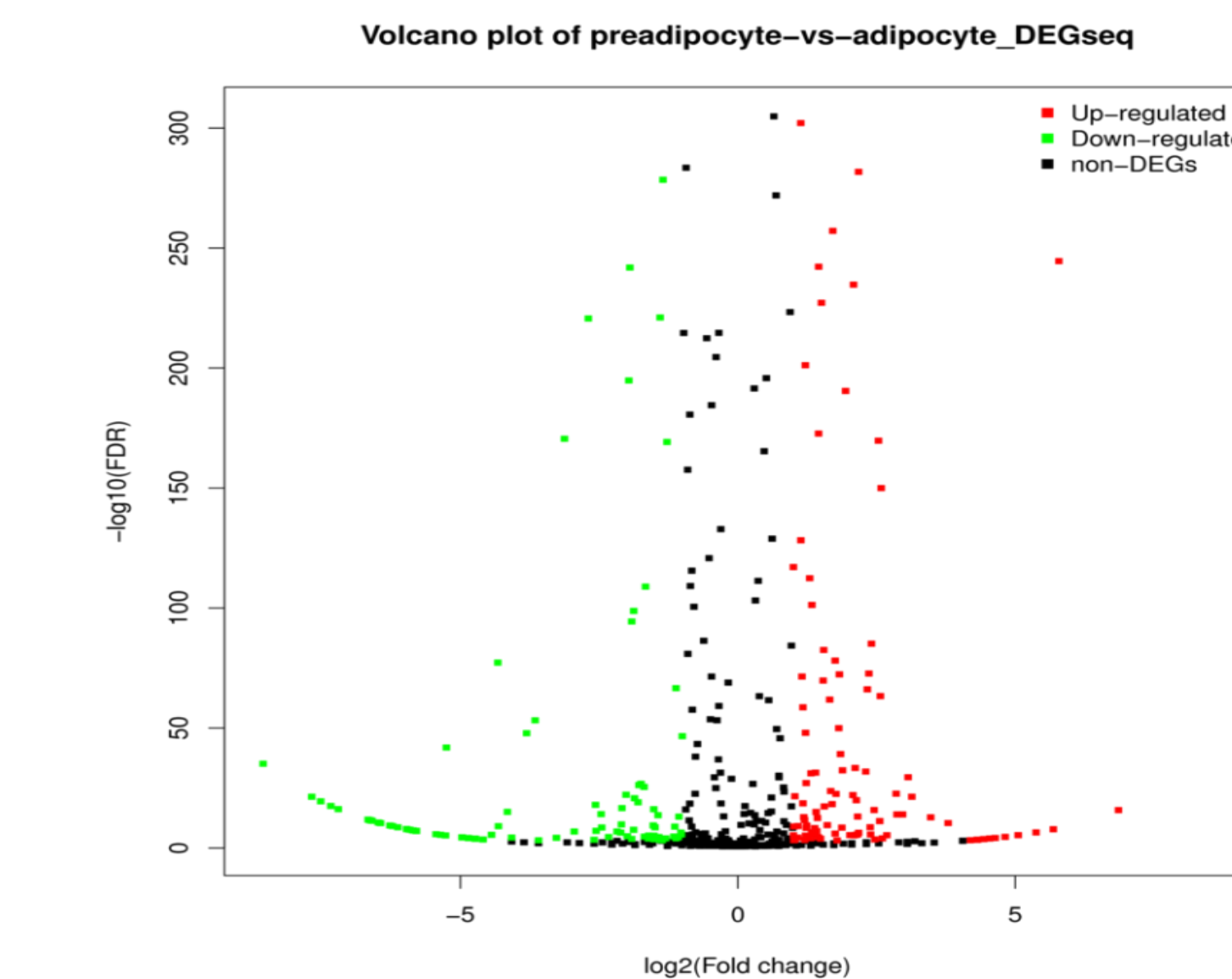


Sample name	Total tag	Mapped tag	Percentage(%)
b_AD_1	24216947	23523986	97.14
b_AD_2	24608755	23928858	97.24
b_AD_3	28398824	27860568	98.1
b_PAD_1	27858763	26797401	96.19
b_PAD_2	23590905	22347469	94.73
b_PAD_3	30589648	30064620	98.28

Statistics of sequence data

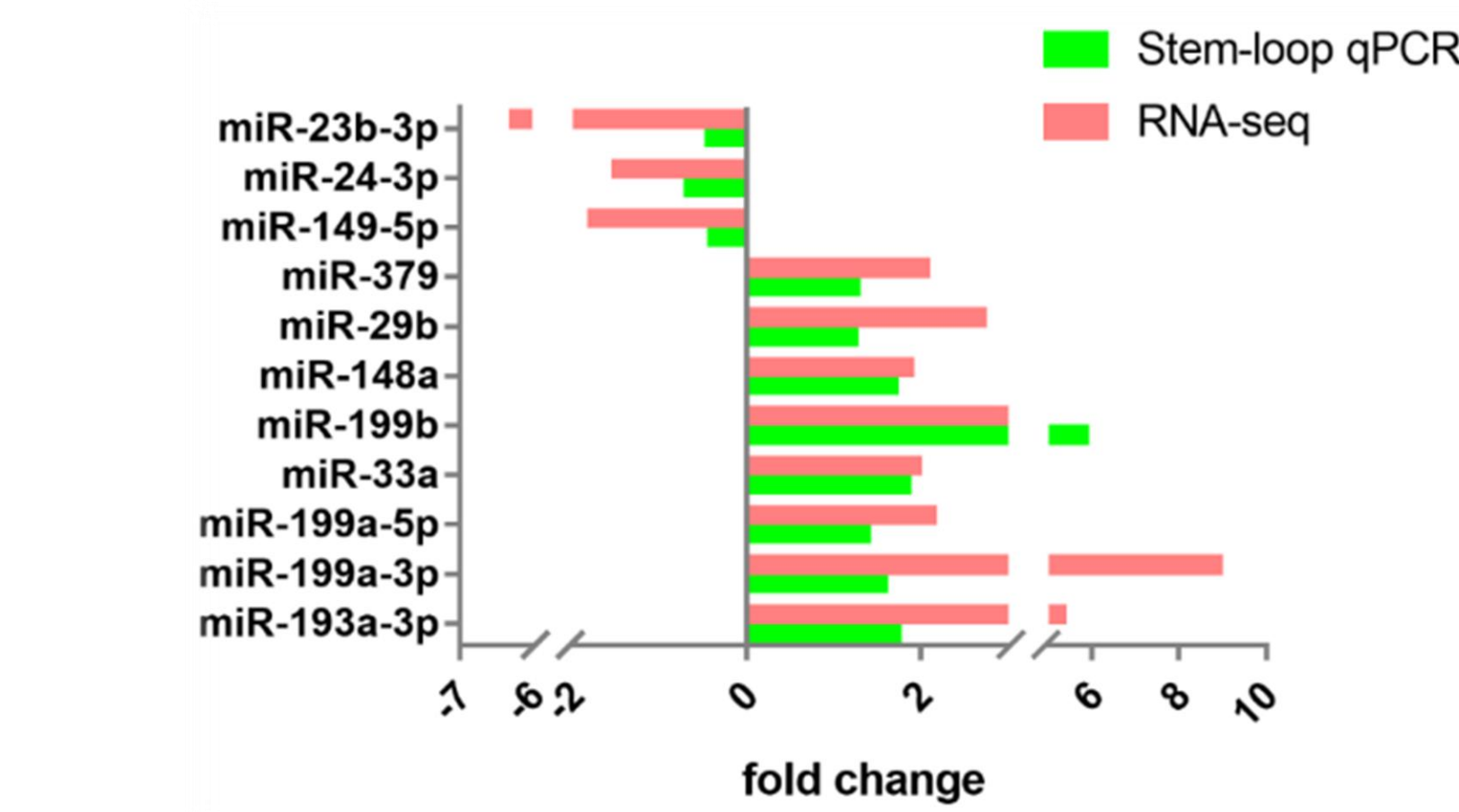


In the sequencing experiment, 250 differentially expressed miRNAs were screened, of which 131 were highly expressed in mature adipocytes and 119 were highly expressed in precursor adipocytes.

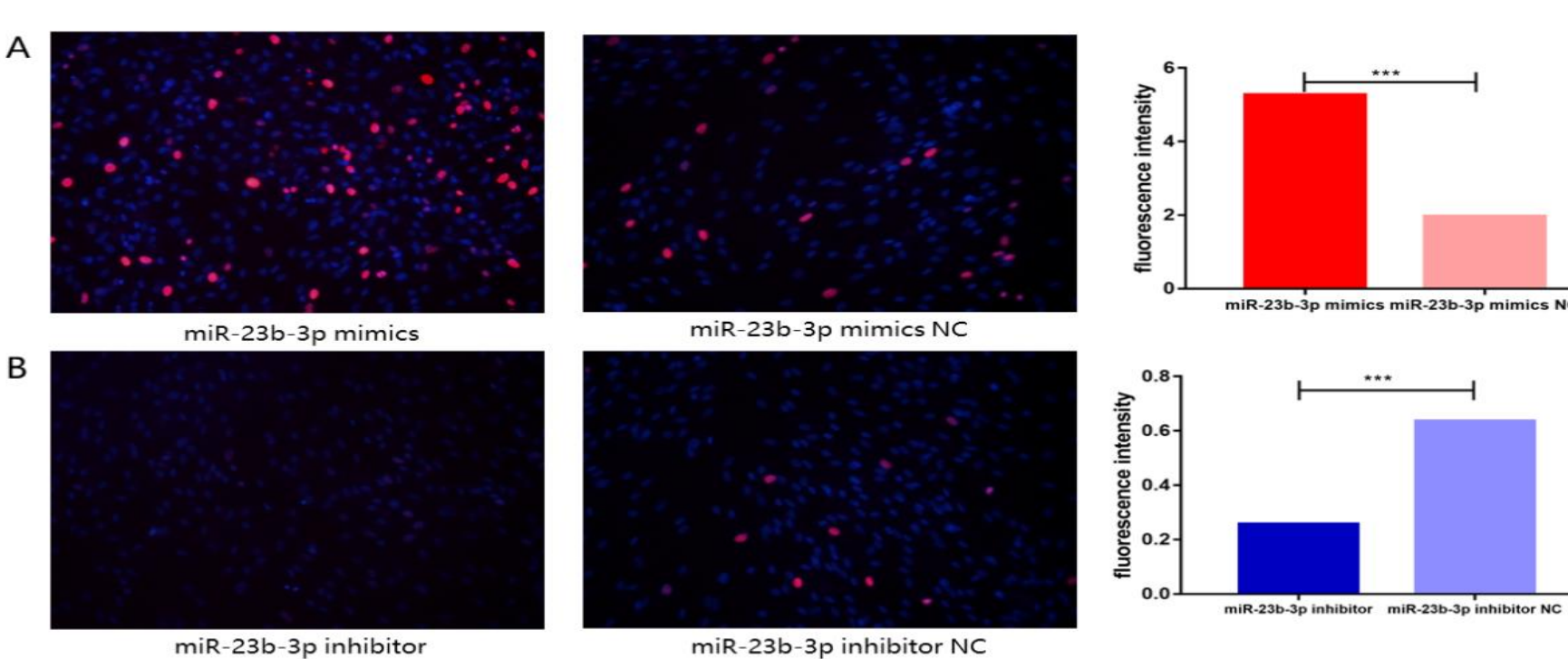


GO functional classification

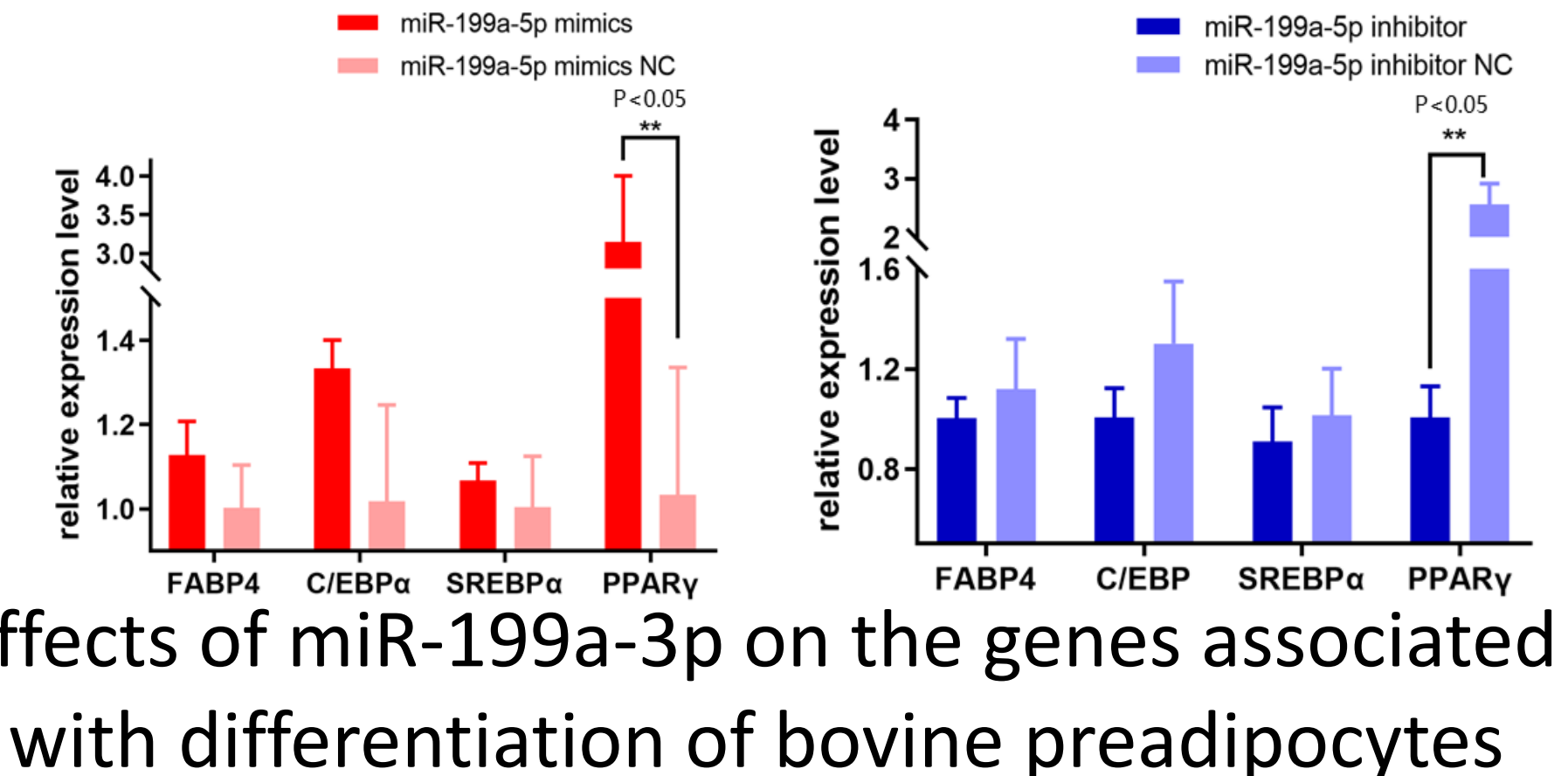
KEGG classification for each pair



Validation of differentially expressed miRNAs and their target gene network interaction



Effects of miR-23b-3p on the proliferation of bovine preadipocytes



Effects of miR-199a-3p on the genes associated with differentiation of bovine preadipocytes

Overexpression of miR-23b-3p can promote the proliferation of bovine precursor adipocytes; overexpression of miR-199a-3p can promote the upregulation of genes related to lipid metabolism.