

TOPIC 1: miRNAs: targeting efficiency and extracellular communication

1. Genomic Clustering Facilitates Nuclear Processing of Suboptimal Pri-miRNA Loci

Renfu Shang , S Chan Baek , Kijun Kim , Boseon Kim , V Narry Kim , Eric C Lai
Mol Cell. 2020 Apr 16;78(2):303-316.e4.

2. Circulating miRNAs in disease

Cheng, M.; Yang, J.; Zhao, X.; Zhang, E.; Zeng, Q.; Yu, Y.; Yang, L.; Wu, B.; Yi, G.; Mao, X.; et al. Circulating myocardial microRNAs from infarcted hearts are carried in exosomes and mobilise bone marrow progenitor cells. Nat. Commun. 2019, 10, 959.

3. ncRNA and communication in plants

Cai, Q.; Qiao, L.; Wang, M.; He, B.; Lin, F.M.; Palmquist, J.; Huang, S.D.; Jin, H. Plants send small RNAs in extracellular vesicles to fungal pathogen to silence virulence genes. Science 2018, 360, 1126–1129.

TOPIC 2 Short ORF in ncRNAs

4. lncRNA with ORFs in physiology

Matsumoto, A.; Pasut, A.; Matsumoto, M.; Yamashita, R.; Fung, J.; Monteleone, E.; Saghatelian, A.; Nakayama, K.I.; Clohessy, J.G.; Pandolfi, P.P.
mTORC1 and muscle regeneration are regulated by the LINC00961-encoded SPAR polypeptide.
Nature 2017, 541, 228–232.

5. lncRNAs multiple function and ORF in development

The Tug1 lncRNA locus is essential for male fertility

Jordan P Lewandowski, Gabrijela Dumbović , Audrey R Watson, Taeyoung Hwang, Emily Jacobs-Palmer, Nydia Chang, Christian Much, Kyle M Turner, Christopher Kirby, Nimrod D Rubinstein, Abigail F Groff, Steve C Liapis , Chiara Gerhardinger, Assaf Bester, Pier Paolo Pandolfi, John G Clohessy, Hopi E Hoekstra, Martin Sauvageau, John L Rinn
Genome Biol. 2020 Sep 7;21(1):237.

TOPIC 3: Small RNAs that control chromatin formation

6. piRNAs in Drosophila

A Heterochromatin-Specific RNA Export Pathway Facilitates piRNA Production

Mostafa F ElMaghraby 1, Peter Refsing Andersen 2, Florian Pühringer 1, Ulrich Hohmann 3, Katharina Meixner 1, Thomas Lendl 3, Laszlo Tirian 1, Julius Brennecke 4
Cell. 2019 Aug 8;178(4):964-979.e20.

7. ncRNA and organization of chromosome topology

Topological organization of multichromosomal regions by the long intergenic noncoding RNA Firre

Ezgi Hacisuleyman, Loyal A Goff, Cole Trapnell, Adam Williams, Jorge Henao-Mejia, Lei Sun, Patrick McClanahan, David G Hendrickson, Martin Sauvageau, David R Kelley, Michael Morse, Jesse Engreitz, Eric S Lander, Mitch Guttman, Harvey F Lodish, Richard Flavell, Arjun Raj, John L Rinn
Nat Struct Mol Biol 2014 Feb;21(2):198-206.

8. Silencing of gene expression by ncRNA

RNA-dependent epigenetic silencing directs transcriptional downregulation caused by intronic repeat expansions

Eimer, H.; Sureshkumar, S.; Singh Yadav, A.; Kraupner-Taylor, C.; Bandaranayake, C.; Seleznev, A.; Thomason, T.; Fletcher, S.J.; Gordon, S.F.; Carroll, B.J.; et al.
Cell 2018, 174, 1095–1105.

TOPIC 4: lncRNA and disease

9. lncRNA as oncogenes

lncRNA epigenetic landscape analysis identifies EPIC1 as an oncogenic lncRNA that interacts with MYC and promotes cell-cycle progression in cancer

Wang, Z.; Yang, B.; Zhang, M.; Guo, W.; Wu, Z.; Wang, Y.; Jia, L.; Li, S.; Cancer Genome Atlas Research Network; Xie, W.; et al.

Cancer Cell 2018, 33, 706–720.

10. lncRNA and cancer progression

A ROR1–HER3–lncRNA signalling axis modulates the Hippo–YAP pathway to regulate bone metastasis.

Li, C.; Wang, S.; Xing, Z.; Lin, A.; Liang, K.; Song, J.; Hu, Q.; Yao, J.; Chen, Z.; Park, P.K.; et al.

Nat. Cell Biol. 2017, 19, 106–119. [

11. ncRNAs, subcompartments and genomic stability

p53 induces formation of NEAT1 lncRNA-containing paraspeckles that modulate replication stress response and chemosensitivity

Carmen Adriaens, Laura Standaert, Jasmine Barra, Mathilde Latil, Annelien Verfaillie, Peter Kalev, Bram Boeckx, Paul W G Wijnhoven, Enrico Radaelli, William Vermi, Eleonora Leucci, Gaëlle Lapouge, Benjamin Beck, Joost van den Oord, Shinichi Nakagawa, Tetsuro Hirose, Anna A Sablina, Diether Lambrechts, Stein Aerts, Cédric Blanpain, Jean-Christophe Marine

Nat Med. 2016 Aug;22(8):861-8.

TOPIC 5: ncRNAs and cell physiology

12. Introns and response to starvation

Introns are mediators of cell response to starvation.

Parenteau, J.; Maignon, L.; Berthoumieux, M.; Catala, M.; Gagnon, V.; Abou Elela, S.

Nature 2019, 565, 612–617.

13. RNA and liquid-liquid phase separation

Stress Induces Dynamic, Cytotoxicity-Antagonizing TDP-43 Nuclear Bodies via Paraspeckle lncRNA NEAT1-Mediated Liquid-Liquid Phase Separation

Chen Wang, Yongjia Duan, Gang Duan, Qiangqiang Wang, Kai Zhang, Xue Deng, Beituo Qian, Jinge Gu, Zhiwei Ma, Shuang Zhang, Lin Guo, Cong Liu, Yanshan Fang

Mol Cell. 2020 Aug 6;79(3):443-458.e7.

TOPIC 6: Functional ncRNA screenings

14. CRISPR RNAi Screening

CRISPRi-based genome-scale identification of functional long noncoding RNA loci in human cells

S John Liu, Max A Horlbeck, Seung Woo Cho, Harjus S Birk, Martina Malatesta, Daniel He, Frank J Attenello, Jacqueline E Villalta, Min Y Cho, Yuwen Chen, Mohammad A Mandegar, Michael P Olvera, Luke A Gilbert, Bruce R Conklin, Howard Y Chang, Jonathan S Weissman, Daniel A Lim

Science. 2017 Jan 6;355(6320)

15. lncRNA and cancer drug resistance

Bester, A.C.; Lee, J.D.; Chavez, A.; Lee, Y.R.; Nachmani, D.; Vora, S.; Victor, J.; Sauvageau, M.; Monteleone, E.; Rinn, J.L.; et al. An integrated genome-wide CRISPRa approach to functionalize lncRNAs in drug resistance.

Cell 2018, 173, 649–664.