Does color have structure? Modeling 3D domains of the fly genome.

Marc A. Marti-Renom Genome Biology Group (CNAG) Structural Genomics Group (CRG)







Label
@FORDUSP02A3WD1
CEGTCAATTEATTTAAGTTTTAACETTGEGGECGTACTECEEAG6EGGT
Announced the second state state of the second
AAAAAAAAAAAA; 1998: ; ; ; ??@8: ; FFAAAAACCAA; ; ; ; 88@8?A?
Queure (in ASCII chars)
Bass=T, Q='1'=25





FastQ files to Maps

Map analysis

Model building

Model analysis



Structuring the COLORs of chromatin







Fly Chromatin COLORs

Filion et al. (2010). Cell, 143(2), 212-224.









Functional COLORs

Hou et al. (2012). Molecular Cell, 48(3), 471–484.







Structural properties

50 1Mb regions. 10 enriched for each color.



Accessibility (%)







Interactions

Angle





Structural COLORs





Structural COLORs





Structural COLORs



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http://3DGenomes.org





YELLOW dense region X:15590000-16600000

6.4% 43.5% 7.5% 18.9% 23.6%











Shameless promotion...



November 23th-27th, Lisbon



FUNDAÇÃO CALOUSTE GULBENKIAN Instituto Gulbenkian de Ciência

http://gtpb.igc.gulbenkian.pt



TADkit v1.0 will be released before summer



- Genome track annotation.
- Cluster selection.
- BED formatted tracks (upload/fetch).
- HiC (parallel) track.
- Restraints (parallel) track.

- Variability representation.
- New renderings.
- Project and user manager.
- Modularity.
- TADbit front-end.





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