

Control of DNA replication by cyclin-dependent kinases in development.

Daniel Fisher

▶ **To cite this version:**

Daniel Fisher. Control of DNA replication by cyclin-dependent kinases in development.. Results and Problems in Cell Differentiation, 2011, 53, pp.201-17. 10.1007/978-3-642-19065-0_10 . inserm-00723366v2

HAL Id: inserm-00723366

https://inserm.hal.science/inserm-00723366v2

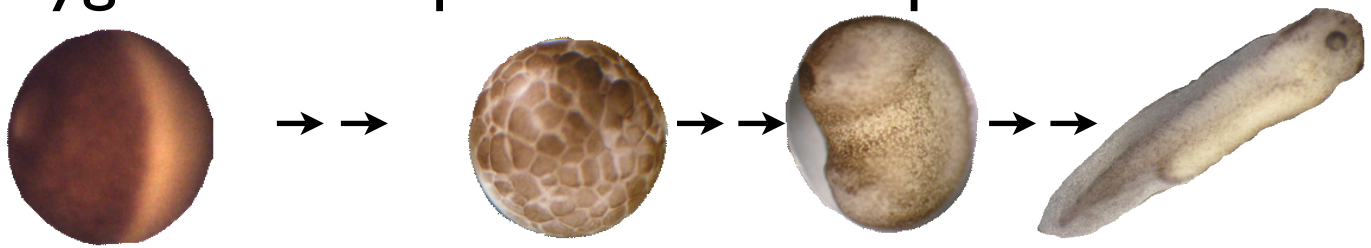
Submitted on 9 Aug 2012

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

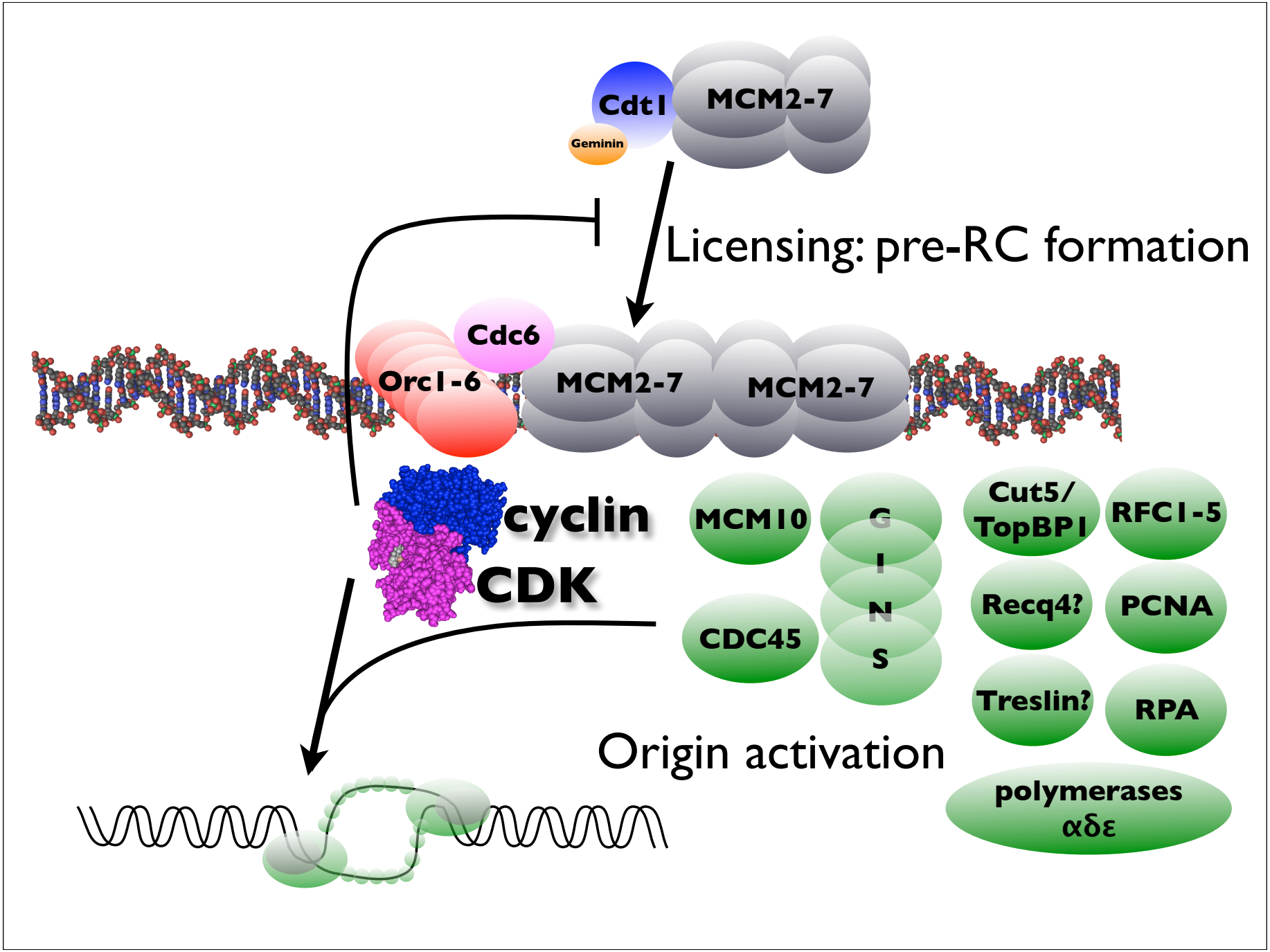
L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

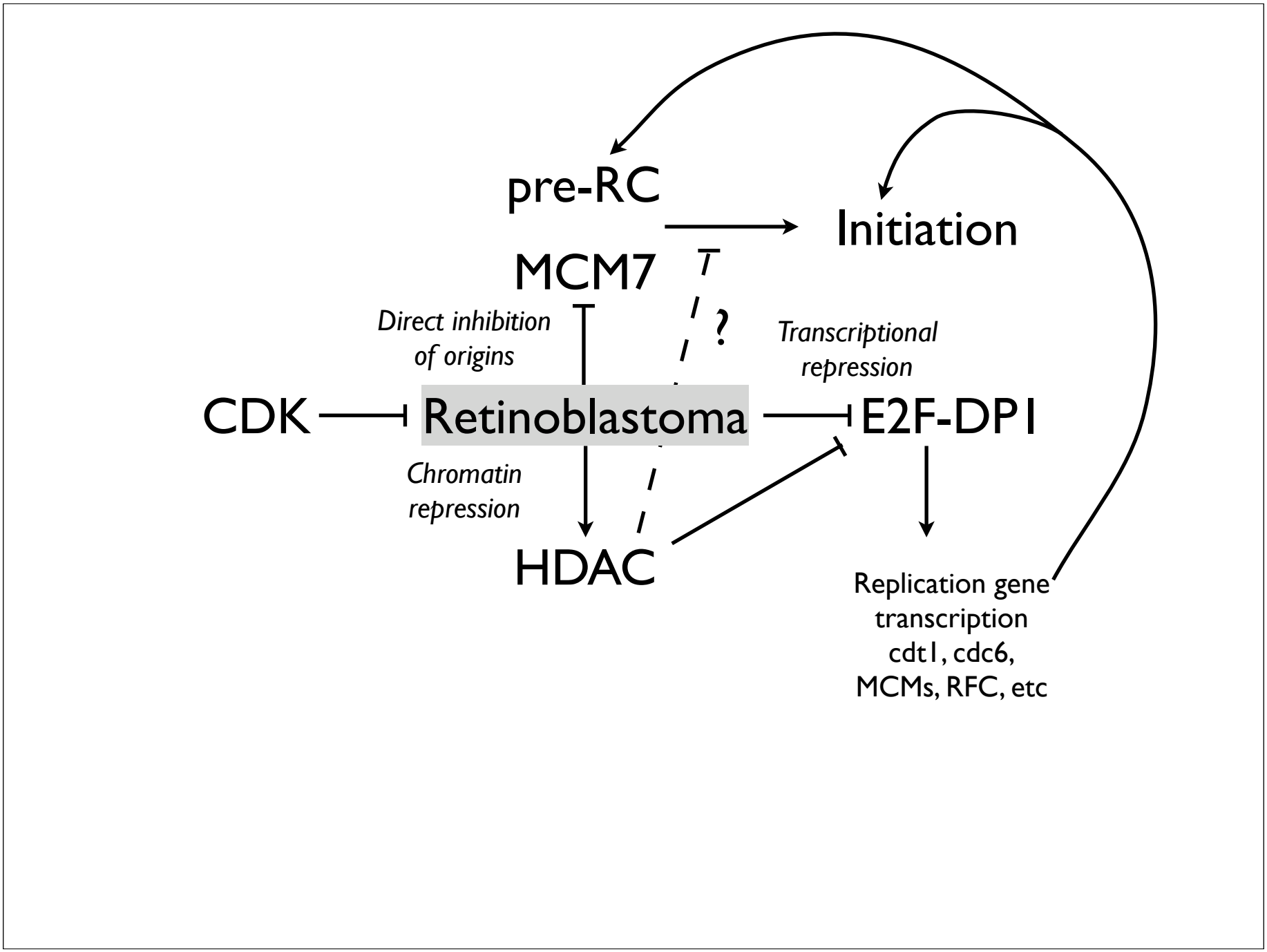
12 cleavage cell cycles

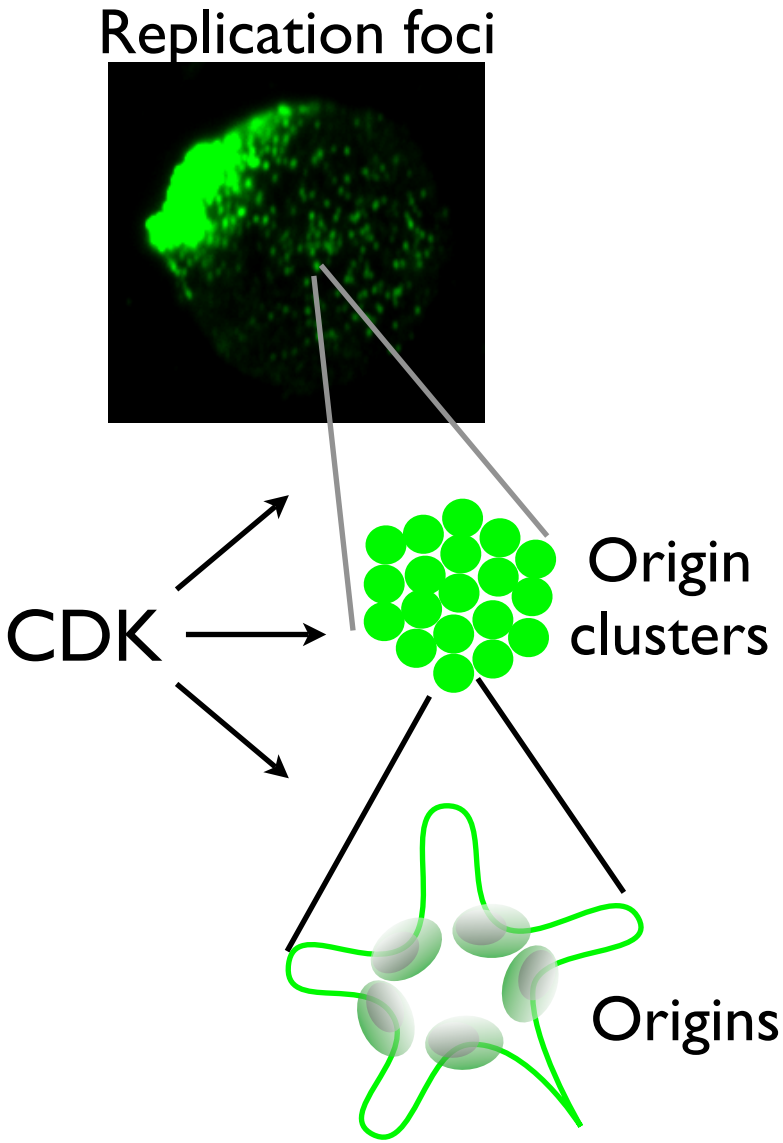
Zygote → pre-MBT → post-MBT



Cell cycle length:	25 minutes	Hours
Replication origin spacing:	5-25 kb	50-300 kb
Replication origin positions:	non-specific, constrained	locus-specific, defined
Transcription:	silent	active
Linker histone expression:	B4, HMG1	H1, H1°


Cdt1
Geminin
MCM2-7
Licensing: pre-RC formation
Cdc6
Orc1-6
MCM2-7
MCM2-7
cyclin
CDK
MCM10
GINS
CDC45
Cut5/
TopBP1
RFC1-5
Recq4?
PCNA
Treslin?
RPA
polymerases
αδε
Origin activation


pre-RC
Initiation
MCM7
T
?
Direct inhibition
of origins
Transcriptional
repression
CDK
Retinoblastoma
E2F-DP1
Chromatin
repression
HDAC
Replication gene
transcription
cdt1, cdc6,
MCMs, RFC, etc


Replication foci
CDK
Origin
clusters
Origins

Physiological process	**Substrates**
Chromatin remodelling	HAT, Rb, Histone H1, others?
Transcription	Rb, NPAT
Pre-RC formation	Cdc6
Origin activation	Rb, Treslin? Recq4? others?
Origin cluster/replication foci activation	Unknown