

ELL (eleven nineteen lysin rich leukemia gene) (updated: old version not available)

Identity

Other names **MEN (myeloid eleven nineteen translocation: <-- WARNING: unrelated to [MEN1](#) and [MEN2](#)); ELL-PEN**
 Hugo [ELL](#)
 Location 19p13.1
 proximal from LYL1 in 19p13.2-p13.1; [ENL](#) and [E2A](#) are more distal in 19p13.3

DNA/RNA

Transcription alternate splicing; 4.4 and 2.8 kb mRNA; coding sequence: 1.9 kb

Protein

Description 621 amino acids; 68 kDa; contains a Lysin rich domain (basic motif)
 Expression wide; especially in leukocytes, muscle, testis, placenta
 Localisation nuclear, except the nucleolus
 Function RNA polymerase II elongation factor, promotes transcription by suppressing transient pausings. In Drosophila ELL is associated with active sites of transcription in vivo. Overexpression of ELL is toxic, suggesting the normal protein may play a role in the regulation of cell growth and survival.

Homology [ELL2](#), [ELL3](#)

Implicated in

Entity [t\(11.19\)\(q23;p13.1\) /ANLL --> MLL-\[ELL\]\(#\)](#)
 Disease mainly M4/M5; treatment related leukemia; all ages
 Prognosis very poor
 Cytogenetics detected with R banding
 Hybrid/Mutated Gene 5' MLL - 3' ELL
 Abnormal Protein Similar to other MLL fusion proteins. The amino terminal AT hook and DNA methyltransferase homology regions from from MLL are fused to most of ELL
 Oncogenesis The carboxyl terminal region of ELL is required for transformation by MLL-ELL in murine bone marrow transformation assays. This region has potent transcriptional activating activity, and interacts with EAF1, a protein that shares homology with AF4, LAF4, and AF5q31. Interestingly the EAF1 interacting domain, but not the ELL elongation domain is required for transformation. ELL has also been reported to interact with p53 and inhibit its transcriptional activating activity.

External links

Nomenclature
[Hugo](#) [ELL](#)
[GDB](#) [ELL](#)
[Entrez Gene](#) [ELL 8178](#) elongation factor RNA polymerase II

Cards

[Atlas](#)
[GeneCards](#)
[Ensembl](#)
[CancerGene](#)
[Genatlas](#)
[GeneLynx](#)
[eGenome](#)
[euGene](#)

[ELL](#)
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[ELL](#)
[8178](#)

Genomic and cartography

[GoldenPath](#)

[ELL](#) - [19p13.1](#) [chr19:18414475-18493918](#) - [19p13.11](#) (hg17-May_2004)

[Ensembl](#)

[ELL](#) - [19p13.11](#) [[CytoView](#)]

[NCBI](#)

[Genes Cyto](#) [Gene Seq](#) [[Map View - NCBI](#)]

[OMIM](#)

[Disease map](#) [[OMIM](#)]

[HomoloGene](#)

[ELL](#)

Gene and transcription

[Genbank](#)

[AC005387](#) [SRS] [AC005387](#) [ENTREZ]

[Genbank](#)

[AF157562](#) [SRS] [AF157562](#) [ENTREZ]

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[AL136771](#) [SRS] [AL136771](#) [ENTREZ]

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[NT_086897](#) [SRS] [NT_086897](#) [ENTREZ]

[AceView](#)

[ELL](#) [AceView](#) - NCBI

[TRASER](#)

[ELL](#) [Traser](#) - Stanford

[Unigene](#)

[Hs.515260](#) [SRS] [Hs.515260](#) [NCBI] [HS515260](#) [spliceNest]

Protein : pattern, domain, 3D structure

[SwissProt](#)

[P55199](#) [SRS] [P55199](#) [EXPASY] [P55199](#) [INTERPRO]

[Interpro](#)

[IPR010844 Occludin](#) [ELL](#) [SRS] [IPR010844 Occludin](#) [ELL](#) [EBI]

[CluSTR](#)

[P55199](#)

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[PF07303 Occludin](#) [ELL](#) [SRS] [PF07303 Occludin](#) [ELL](#) [Sanger]
] [pfam07303](#) [NCBI-CDD]

[Blocks](#)

[P55199](#)

Polymorphism : SNP, mutations, diseases

[OMIM](#)

[600284](#) [[map](#)]

[GENECLINICS](#)

[600284](#)

[SNP](#)

[ELL](#) [dbSNP-NCBI]

[SNP](#)

[NM_006532](#) [SNP-NCI]

[SNP](#)

[ELL](#) [GeneSNPs - Utah] [ELL](#) [SNP - CSHL] [ELL](#) [HGBASE - SRS]

General knowledge

[Family Browser](#)

[ELL](#) [UCSC Family Browser]

[SOURCE](#)

[NM_006532](#)

[SMD](#)

[Hs.515260](#)

[SAGE](#)

[Hs.515260](#)

[Amigo](#)

[process|RNA elongation from Pol II promoter](#)

[Amigo](#)

[component|nucleus](#)

[Amigo](#)

[function|positive transcription elongation factor activity](#)

[Amigo](#)

[process|regulation of transcription, DNA-dependent](#)

[PubGene](#)

[ELL](#)

Other databases

	Probes
Probe	ELL Related clones (RZPD - Berlin)
	PubMed
PubMed	6 Pubmed reference(s) in LocusLink

Bibliography

Cloning of ELL, a gene that fuses to MLL in a t(11;19)(q23;p13.1) in acute myeloid leukemia.

Thirman MJ, Levitan DA, Kobayashi H, Simon MC, Rowley JD
 Proc Natl Acad Sci U S A 1994 Dec 6;91(25):12110-4
 Medline [95083651](#)

Cloning of several species of MLL/MEN chimeric cDNAs in myeloid leukemia with t(11;19)(q23;p13.1) translocation.

Mitani K, Kanda Y, Ogawa S, Tanaka T, Inazawa J, Yazaki Y, Hirai H
 Blood 1995 Apr 15;85(8):2017-24
 Medline [95235023](#)

An RNA polymerase II elongation factor encoded by the human ELL gene.

Shilatifard A, Lane WS, Jackson KW, Conaway RC, Conaway JW
 Science 1996 Mar 29;271(5257):1873-6
 Medline [96175588](#)

Structure and function of RNA polymerase II elongation factor ELL. Identification of two overlapping ELL functional domains that govern its interaction with polymerase and the ternary elongation complex.

Shilatifard A, Haque D, Conaway RC, Conaway JW
 J Biol Chem 1997 Aug 29;272(35):22355-63
 Medline [97413851](#)

Transcriptional inhibition of p53 by the MLL/MEN chimeric protein found in myeloid leukemia.

Maki K, Mitani K, Yamagata T, Kurokawa M, Kanda Y, Yazaki Y, Hirai H.
 Blood. 1999 93(10):3216-24.
 Medline [99252074](#)

Identification, cloning, expression, and biochemical characterization of the testis-specific RNA polymerase II elongation factor ELL3.

Miller T, Williams K, Johnstone RW, Shilatifard A.
 J Biol Chemistry 2000 Oct 13 275(41):32052-6.
 Medline [20493588](#)

A carboxy-terminal domain of ELL is required and sufficient for immortalization of myeloid progenitors by MLL-ELL.

DiMartino JF, Miller T, Ayton PM, Landewe T, Hess JL, Cleary ML, Shilatifard A.
 Blood 2000 96(12):3887-93.
 Medline [20541523](#)

Drosophila ELL is associated with actively elongating RNA polymerase II on transcriptionally active sites in vivo.

Gerber M, Ma J, Dean K, Eissenberg JC, Shilatifard A.

EMBO J 2001 20(21):6104-14.
Medline [21547947](#)

Functional analysis of the leukemia protein ELL: evidence for a role in the regulation of cell growth and survival.

Johnstone RW, Gerber M, Landewe T, Tollefson A, Wold WS, Shilatifard A.
Mol Cell Biol 2001 21(5):1672-81.
Medline [21137189](#)

EAF1, a novel ELL-associated factor that is delocalized by expression of the MLL-ELL fusion protein.

Simone F, Polak PE, Kaberlein JJ, Luo RT, Levitan DA, Thirman MJ.
Blood 2001 98(1):201-9.
Medline [21311412](#)

The elongation domain of ELL is dispensable but its ELL-associated factor 1 interaction domain is essential for MLL-ELL-induced leukemogenesis.

Luo RT, Lavau C, Du C, Simone F, Polak PE, Kawamata S, Thirman MJ.
Mol Cell Biol 2001 21(16):5678-87.
Medline [21356990](#)

[REVIEW articles](#) *automatic search in PubMed*

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Huret JL . ELL (eleven nineteen lysin rich leukemia gene). Atlas Genet Cytogenet Oncol Haematol. December 1997 .

URL : <http://www.infobiogen.fr/services/chromcancer/Genes/ELL.html>

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URL : <http://www.infobiogen.fr/services/chromcancer/Genes/ELL.html>

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