

## Gene Section

### Mini Review

# EP300 (E1A binding protein p300)

Jean-Loup Huret

Genetics, Dept Medical Information, University of Poitiers, CHU Poitiers Hospital, F-86021 Poitiers, France (JLH)

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### Identity

**Other names:** P300; E1A binding protein p300

**HGNC (Hugo):** EP300

**Location:** 22q13.2

### DNA/RNA

#### Transcription

9046 bp mRNA; coding sequence: 7244 bp.

### Protein

#### Description

2414 amino acids; 264 kDa.

#### Expression

Widely expressed ; also expressed in the whole embryo; possesses from N term to C term: a nuclear localization signal, a poly-serine, a bromodomain, a poly-glu, a binding region for E1A adenovirus, and a poly-gln.

#### Localisation

Nucleus.

#### Function

p300 and CBP are highly related proteins implicated in transcriptional responses to various extracellular and intracellular signals with chromatin remodeling; they are non-DNA-binding transcriptional coactivators; they interact with transcriptional activators as well as repressors; p300 and CBP are involved in most cellular programs, including growth, terminal differentiation, and P53-mediated apoptosis (with MDM2 interaction) processes; p300 and CBP appear to have distinct

functions during differentiation; there is embryonic lethality of mice nullizygous for p300 (with defects in neurulation and heart development), and as well of mice double heterozygous for p300 and CBP, underlining their essential and associated role.

#### Homology

CBP

### Implicated in

#### *t*(11;22)(q23;q13)

##### Note

Very rare.

##### Disease

Therapy related acute non lymphocytic leukemia.

##### Hybrid/Mutated gene

5 MLL-3 P300.

##### Abnormal protein

N-term MLL fused to C-term P300.

##### Oncogenesis

Likely to be driven by the MLL part.

#### **Gastric and colorectal carcinomas**

##### Oncogenesis

Mutations in both alleles.

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