

## BACKGROUND

Cyclin-D2 is encoded by the CCND2 gene in human. It belongs to the highly conserved cyclin family that control cell cycle progression in an orderly fashion from G1 to S- to G2/M.<sup>1</sup> In mammalian cells, progression through the cell cycle is governed by a family of Cdks, whose activity is regulated by phosphorylation, activated by binding of cyclins, and inhibited by Cdk inhibitors. Three D-type cyclins (D1, D2, and D3) are expressed in G1 phase of the cell cycle and depending on cell lineage. D-type cyclins form complexes with and activate cdk2, -4, and -6 during the G1 phase of the cell cycle.<sup>2</sup> The INK4 family of cell cycle inhibitors (P16INK4a, P15INK4b, P18INK4c, and P19INK4d) negatively regulates the activity of Cdk4/6 by preventing cyclin D binding. A key substrate for G1 cyclin/cdk complexes is the retino-blastoma protein, pRb. Phosphorylation of pRb, a tumor suppressor gene product, has been attributed to cyclin/cdk complexes and implicated in the regulation of proliferation in mammalian cells. Phosphorylation of pRb blocks its ability to suppress the activity of S phase promoting transcription factors such as E2F. Apart from the positive roles that D-type cyclins play in cell cycle progression, a number of recent studies have shown that D-type cyclins also perform cdk-independent functions and, in certain cell types, even prevent cdk from being activated.<sup>3</sup> Up-regulation of cyclin D2 has been implicated in human gastric carcinoma.<sup>4</sup>

### References:

1. Tsihlias J et al.: Annu. Rev. Med., 50: 401-423, 1999.
2. Sweeney KJ et al.: Oncogene 14:1329 - 1340, 1997.
3. Pagano M et al.: Genes Dev., 8, 1627 - 1639, 1994.
4. Nakayama OY et al.: Int J Oncol.;23:1663-70, 2003.

## TECHNICAL INFORMATION

### Source:

Cyclin D2 Antibody is a rabbit polyclonal antibody raised against human Cyclin D2 N-terminal sequence.

### Specificity and Sensitivity:

This polyclonal antibody detects endogenous levels of Cyclin D2 proteins in normal primary cell lysates.

**Storage Buffer:** PBS and 30% glycerol

### Storage:

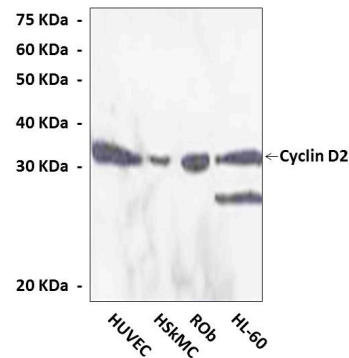
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

## APPLICATIONS

Application:	*Dilution:
WB	1:1000
IP	1:50
IHC	1:100
ICC	n/d
FACS	n/d

\*Optimal dilutions must be determined by end user.

## QUALITY CONTROL DATA



Western Blot detection of endogenous Cyclin D2 proteins from various normal primary cell lysates using Cyclin D2 antibody. HUVEC: Human Umbilical Vein Endothelial Cells; HSkMC: Human Skeletal Muscle Cells; ROB: Rat Osteoblasts.

