BACKGROUND

NF-kappa-B is a pleiotropic transcription factor which is present in almost all cell types and is involved in many biological processed such as inflammation, immunity, differentiation, cell growth, tumorigenesis and apoptosis. The NF-kappa-B family includes five members, p65 (Rel-A), c-Rel, Rel-B, NF-kappa-B1 (p50 and its precursor p105), and NF-kappa-B2 (p52 and its precursor p100). In the inactive state, NF-kappa-B proteins are sequestered in the cytoplasm by I B proteins (IkappaBalpha, IkappaBbeta, IkappaBepsilon, and IkappaBgamma). IkappaB inactivates NF-kappaB by masking the nuclear localization signals (NLS). Following stimulation, I B kinase (IKK) complexes are activated to phosphorylate IkappaB proteins, which leads to proteasome-mediated degradation of IkappaB proteins. The released NF-kappa-B proteins translocate into the nucleus where they bind to kappaB sequences in the promoters of target genes to initiate transcription.[1] In general, activated NF-kappa-B dimers containing p65, c-Rel, or Rel-B can transactivate NF-kappa-B -dependent genes. In contrast, NF-kappa-B homodimers, p50/p50 and p52/p52, which lack transactivation domains, function primarily to inhibit NF-kappa-B -responsive genes. However, binding of p50/p50 or p52/p52 homodimers to B cell lymphoma 3 (Bcl-3), a transcriptional coactivator, confers the ability of these homodimers to induce NF-kappa-B responsive genes. Bcl-3 belongs to the IkappaB family and can interact with NF-kappa-B proteins through its ankyrin repeats. Unlike other IkappaB proteins, which are expressed in the cytoplasm and function as repressors of NF-kappa-B, Bcl-3 is predominately expressed in the nucleus and functions as an activator through interactions with p50 and p52 homodimers.[2] NF-kaapa-B1 appears to have dual functions such as cytoplasmic retention of attached NF-kappa-B proteins by p105 and generation of p50 by a cotranslational processing. The proteasome-mediated process ensures the production of both p50 and p105 and preserves their independent function, although processing of NF-kappa-B1/p105 also appears to occur post-translationally. p50 binds to the kappa-B consensus sequence 5'-GGRNNYYCC-3', located in the enhancer region of genes involved in immune response and acute phase reactions.[3]

In addition to regulation of NF-kappa-B activity through removal of IkappaB from NF-kappa-B/IkappaB complexes, NF-kappa-B activity is also regulated through modulation of its transcriptional function. Changes in NF-kappa-B transcriptional activity have been assigned to inducible phosphorylation of the p65 subunit at Ser276, Ser529, and Ser536 by a large variety of kinases in response to different stimuli.[4] Additionally, NF-kappa-B -dependent transcription requires multiple coactivators possessing histone acetyltransferase activity: CREB binding protein (CBP) and its homolog p300, p300/CBP-associated factor (P/CAF), SRC-1/NcoA-1, and TIF-2/GRIP-1/NcoA-2. Importantly, recruitment of CBP is enhanced by phosphorylation by the catalytic subunit of PKA (PKAc) of p65 at Ser276. More recently, other findings demonstrated a role for histone deacetylases (HDACs) as well. The first evidence came from the demonstration that inhibition of HDAC activity by trichostatin A (TSA) increases NF-kappa-B-dependent gene expression. It was next shown that NF-kappa-B interacts with distinct HDAC isoforms to negatively regulate gene expression, presumably through the deacetylation of histones and/or nonhistone proteins. Importantly, the phosphorylation status of p65 determines whether it associates with CBP/p300 or HDAC-1, ensuring that only signal-induced NF-kappa-B entering the nucleus can activate transcription.[5]

References:
1. Hayden, M.S. & Ghosh, S.: Cell 134:344-62, 2008
2. Dai, R. et al: J. Immunol.179:1776-83, 2007
3. Moorthy, A.K. et al: EMBO J. 25:1945-56, 2006
4. Vermeulen, L. et al: Biochem. Pharmacol. 64:673-90, 2002
5. Zhong, H. et al: Mol. Cell 9:625-36, 2002

TECHNICAL INFORMATION

Source:
c-Rel Antibody is a mouse monoclonal antibody raised against recombinant human c-Rel fragments expressed in *E. coli*.

Specificity and Sensitivity:
This antibody detects c-Rel proteins in various cell lysate.

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

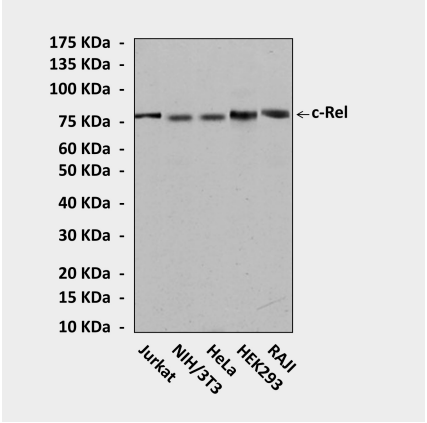
Application:	*Dilution:
WB	1:1000
IP	1:25-50
IHC (Paraffin)	1:50-200
ICC	1:50-200
FACS	n/d

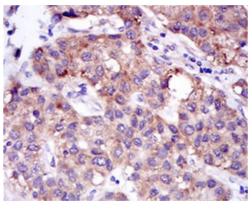
**Optimal dilutions must be determined by end user.*

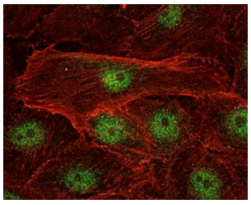
c-Rel Antibody
Cat. No. CP10416

Applications:	**WB, IP, IHC, ICC**
Detected MW:	**78 kDa**
Species & Reactivity:	**Human, Mouse, Rat**
Isotype:	**Mouse IgG1**

QUALITY CONTROL DATA







Top: Western blot detection of c-Rel proteins in various cell lysates using c-Rel Antibody. **Middle:** This antibody stains paraffin-embedded human liver cancer tissue in IHC analysis. **Bottom:** It also stains U251 cells in confocal immunofluorescent testing (c-Rel Antibody: Green; Actin filaments: Red).