

# PRODUCT INFORMATION



## IRAK4 (human, recombinant)

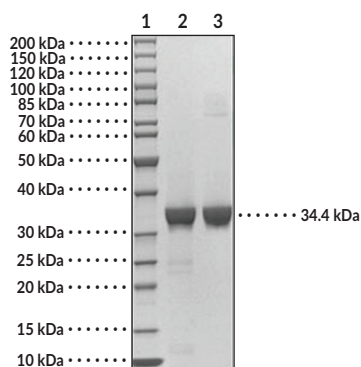
Item No. 42144

### Overview and Properties

<b>Synonyms:</b>	IL-1 Receptor-associated Kinase 4, Interleukin-1 Receptor-associated Kinase 4, Renal Carcinoma Antigen NY-REN-64
<b>Source:</b>	Active recombinant human IRAK4 expressed in insect cells
<b>Amino Acids:</b>	154-460
<b>Uniprot No.:</b>	Q9NWZ3
<b>Molecular Weight:</b>	34.4 kDa
<b>Storage:</b>	-80°C (as supplied)
<b>Stability:</b>	≥1 year
<b>Purity:</b>	≥90% estimated by SDS-PAGE
<b>Supplied in:</b>	50 mM Tris-HCl, pH 7.5, 200 mM sodium chloride, and 20% glycerol
<b>Endotoxin Testing:</b>	<1.0 EU/μg, determined by the LAL endotoxin assay
<b>Protein Concentration:</b>	<i>batch specific</i> mg/ml

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Image



Lane 1: MW Markers  
Lane 2: IRAK4 (2 μg, reduced)  
Lane 3: IRAK4 (2 μg, non-reduced)

**SDS-PAGE Analysis of IRAK4.** This protein has a calculated molecular weight of 34.4 kDa.

**WARNING**  
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

**SAFETY DATA**  
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

**WARRANTY AND LIMITATION OF REMEDY**  
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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## Description

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IL-1 receptor-associated kinase 4 (IRAK4) is a serine/threonine kinase involved in Toll/IL-1 receptor (TIR) signaling.<sup>1,2</sup> It is composed of an N-terminal death domain, which is involved in dimerization and interaction with MyD88, a proline/serine/threonine-rich domain, and a C-terminal kinase domain.<sup>2</sup> IRAK4 is ubiquitously expressed and localizes to the cytoplasm.<sup>1,3</sup> It has roles in innate and adaptive immunity, interacts with IRAK1, MyD88, and TNF receptor-associated factor 6 (TRAF6), and signals through the NF- $\kappa$ B and MAPK pathways.<sup>1,2</sup> Homozygous knockout of *Irak4* increases susceptibility to *M. bovis* infection in mice and decreases survival and increases lung bacterial burden in a mouse model of *M. tuberculosis* infection, however, *Irak4*<sup>-/-</sup> mice are resistant to LPS-induced septic shock.<sup>4,5</sup> Mutations in *IRAK4* are associated with an increased risk of invasive bacterial infections in children.<sup>6</sup> Cayman's IRAK4 (human, recombinant) protein can be used for enzyme activity assays. This protein has a calculated molecular weight of 34.4 kDa.

## References

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1. Li, S., Strelow, A., Fontana, E.J., *et al.* IRAK-4: A novel member of the IRAK family with the properties of an IRAK-kinase. *Proc. Natl. Acad. Sci. USA* **99(8)**, 5567-5572 (2002).
2. Su, L.-C., Xu, W.-D., and Huang, A.-F. IRAK family in inflammatory autoimmune diseases. *Autoimmun. Rev.* **19(3)**, 102461 (2020).
3. Nagpal, K., Plantinga, T.S., Sirois, C.M., *et al.* Natural loss-of-function mutation of myeloid differentiation protein 88 disrupts its ability to form Myddosomes. *The J. Biol. Chem.* **286(13)**, 11875-11882 (2011).
4. Marinho, F.V., Fahel, J.S., Scanga, C.A., *et al.* Lack of IL-1 receptor-associated kinase-4 leads to defective Th1 cell responses and renders mice susceptible to mycobacterial infection. *J. Immunol.* **197(5)**, 1852-1863 (2016).
5. Suzuki, N., Suzuki, S., Duncan, G.S., *et al.* Severe impairment of interleukin-1 and toll-like receptor signalling in mice lacking IRAK-4. *Nature* **416(6882)**, 750-756 (2002).
6. Ku, C.-L., von Bernuth, H., Picard, C., *et al.* Selective predisposition to bacterial infections in IRAK-4-deficient children: IRAK-4-dependent TLRs are otherwise redundant in protective immunity. *J. Exp. Med.* **204(10)**, 2407-2422 (2007).

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