## Phylogeny

Human NIM1 kinase (NIM1K; serine/threonine kinase) belongs to the human kinome but its placement is inconsistent across classification schemes. Some sources categorise it within the CAMK group and NIM1 family (Ostalé et al., 2021; Johnson et al., 2023), whereas others, following the Manning et al. 2002 framework, assign it to the “Other” kinase group (Moret et al., 2020). The Schizosaccharomyces pombe orthologue is Nim1/Cdr1, a mitotic‐inducing serine/threonine kinase (Wu & Russell, 1997a, 1997b).

## Reaction Catalyzed

ATP + protein ⇌ ADP + phosphoprotein  
A documented example in S. pombe is: ATP + Wee1 ⇌ ADP + phospho-Wee1 (Wu & Russell, 1997a, 1997b; Moret et al., 2020).

## Cofactor Requirements

Mg²⁺ or Mn²⁺ are required divalent metal cofactors for phosphotransfer (Johnson et al., 2023; Moret et al., 2020).

## Substrate Specificity

A large-scale profiling study included NIM1K (Q8IY84) but did not define a clear consensus phosphorylation motif or residue preferences for this enzyme (Johnson et al., 2023).

## Structure

No 3-D structure or domain organisation is reported for human NIM1K in the cited sources. Protein kinases share a conserved ePK fold comprising two lobes that form the ATP-binding cleft (Moret et al., 2020). For the S. pombe orthologue, residues 291–354 are necessary for catalytic activity and binding to the inhibitor Nif1 (Wu & Russell, 1997a).

## Regulation

• Human NIM1K activity is stimulated by calcium/calmodulin (Ostalé et al., 2021).  
• In S. pombe, Nim1 is inhibited by Nif1 and, in turn, phosphorylates the Wee1 kinase within its C-terminal catalytic domain, down-regulating Wee1 (Wu & Russell, 1997a, 1997b).

## Function

NIM1K phosphorylates substrate proteins and contributes to cell-cycle control (Ostalé et al., 2021; Johnson et al., 2023). It is classified as an understudied (“dark”) kinase yet is detectably expressed (protein and/or mRNA) in numerous Cancer Cell Line Encyclopedia (CCLE) lines, with several showing RPKM > 1 (Moret et al., 2020).  
In S. pombe, Nim1 promotes mitotic entry by phosphorylating and inhibiting Wee1; its known partners are its substrate Wee1 and its inhibitor Nif1 (Wu & Russell, 1997a, 1997b).

## Inhibitors

No specific chemical or protein inhibitors are reported for human NIM1K in the provided sources.

## Other Comments

NIM1K is regarded as an understudied/dark kinase warranting further investigation; no disease associations are described in the cited material (Moret et al., 2020).

## References

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