1. Phylogeny  
   Cyclin‐dependent kinase 2 (CDK2) is an evolutionarily conserved member of the cyclin‐dependent kinase family. CDK2 orthologs are present from yeast (where the closest homolog is Cdc28 in Saccharomyces cerevisiae) to higher eukaryotes including mammals, illustrating its deep evolutionary roots across species (nigg1995cyclin‐dependentproteinkinases pages 1-2, malumbres2005mammaliancyclindependentkinases pages 1-2). Within the human kinome, CDK2 is classified among the serine/threonine kinases that share a conserved bilobal catalytic domain. It evolved from a common ancestral CDK and, like other kinases in this family, diverged functionally by adopting specific cyclin partners for activation. The evolutionary relationship of CDK2 is well supported by phylogenomic analyses showing conservation of key regulatory motifs such as the PSTAIRE helix, an element shared among various CDKs (nigg1995cyclin‐dependentproteinkinases pages 1-2, malumbres2005mammaliancyclindependentkinases pages 1-2). In summary, CDK2 belongs to a core set of cell cycle regulators whose origin can be traced to the Last Eukaryotic Common Ancestor, and it maintains a close evolutionary relationship with its paralogs that function in similar proliferative pathways (malumbres2005mammaliancyclindependentkinases pages 1-2, mendenhall1998regulationofcdc28 pages 3-4).
2. Reaction Catalyzed  
   CDK2 catalyzes the transfer of a phosphate group from ATP to specific serine or threonine residues present in substrate proteins. The chemical reaction can be summarized as:  
     ATP + [protein]-(L-serine or L-threonine) → ADP + [protein]-(L-serine/threonine)-phosphate + H⁺  
   This phosphorylation event is critical for initiating downstream cellular processes such as the progression of the cell cycle. CDK2 thereby functions as an essential regulator that converts ATP-dependent chemical energy into a post-translational modification that alters protein function (chohan2015cyclindependentkinase2as pages 1-2).
3. Cofactor Requirements  
   The kinase activity of CDK2 is strictly dependent on the presence of ATP, which serves as the phosphate donor during the phosphorylation reaction. In addition to ATP, CDK2 activity requires divalent cations, particularly Mg²⁺, which coordinate with ATP to enable proper binding within the kinase active site. This cofactor is essential for the catalytic efficiency and proper positioning of ATP in the enzyme’s active site, thereby facilitating the phosphorylation of its substrates (chohan2015cyclindependentkinase2as pages 1-2).
4. Substrate Specificity  
   CDK2 is a serine/threonine kinase that displays a high degree of substrate specificity determined largely by the amino acid sequence surrounding the target phosphorylation site. In general, CDK2 recognizes substrates that contain a minimal consensus phosphorylation motif consisting of a serine or threonine residue immediately followed by a proline, frequently expanded to the consensus motif (S/T)P-X-(K/R) where X is any amino acid (errico2010identificationofsubstrates pages 4-6). This substrate motif ensures that CDK2 phosphorylates proteins involved in key cellular processes such as DNA replication, cell cycle progression, centrosome duplication, and transcriptional regulation. Comprehensive substrate profiling using high-throughput platforms has reinforced that the intrinsic substrate preference for CDK2 as a serine/threonine kinase aligns with the consensus sequence described in studies of the human serine/threonine kinome (Johnson2023Anatlashift, Yaron-Barir2024Theintrinsic).
5. Structure  
   CDK2 possesses a prototypical kinase fold characterized by a bilobal structure. The N-terminal lobe is primarily composed of β-sheets and includes critical structural elements such as the PSTAIRE helix, which plays a fundamental role in binding cyclin partners. The C-terminal lobe is mainly α-helical and houses the activation loop (T-loop), a flexible segment whose conformation is essential for the regulation of enzymatic activity. In its inactive monomeric form, the T-loop blocks the catalytic cleft, preventing substrate access and alignment of catalytic residues. Upon cyclin binding (typically by cyclin E during the G1/S transition or cyclin A during S and G2 phases), conformational changes occur that reposition the T-loop to expose the active site; this reorientation is further stabilized by phosphorylation at a critical threonine residue (Thr160) by CDK-activating kinase (CAK) (chohan2015cyclindependentkinase2as pages 1-2, harper2001cyclindependentkinases pages 2-4, mendenhall1998regulationofcdc28 pages 6-8). Key catalytic residues such as Lys33, Glu51, and Asp145 are precisely aligned in the active site to coordinate the binding of ATP and subsequent phosphate transfer. Structural studies have revealed a hydrophobic spine that stabilizes the active conformation and a well-defined ATP-binding pocket that is common among CDKs; these features have been exploited in the rational design of CDK2 inhibitors (malumbres2005mammaliancyclindependentkinases pages 3-4, harper2001cyclindependentkinases pages 2-4).
6. Regulation  
   CDK2 activity is regulated by multiple, tightly coordinated mechanisms. First, CDK2 must bind to one of its cyclin partners—cyclin E initially and later cyclin A—which induces a conformational change that partially activates the kinase. Full activation is achieved through the phosphorylation of the T-loop at Thr160, a modification carried out by CDK-activating kinase (Cdk7 in the context of the CDK7/cyclin H/MAT1 complex) (chohan2015cyclindependentkinase2as pages 1-2, malumbres2005mammaliancyclindependentkinases pages 6-7). Conversely, CDK2 can be inhibited by phosphorylation at inhibitory sites, including Thr14 and Tyr15, mediated by Wee1 and Myt1 kinases; these modifications reduce substrate affinity and block catalytic activity until removed by Cdc25 phosphatases (sielecki2000cyclindependentkinaseinhibitors pages 2-4, harper2001cyclindependentkinases pages 2-4). In addition, endogenous CDK inhibitors from the Cip/Kip family such as p21^Cip1, p27^Kip1, and p57^Kip2 bind to CDK2-cyclin complexes, thereby suppressing their kinase activity and providing a further layer of regulation (sielecki2000cyclindependentkinaseinhibitors pages 5-6, malumbres2005mammaliancyclindependentkinases pages 6-7). This combinatorial regulation through cyclin association, activating phosphorylation, inhibitory phosphorylation, and binding of CKIs ensures that CDK2 activity is precisely modulated during the cell cycle to prevent aberrant or premature progression through critical checkpoints (chohan2015cyclindependentkinase2as pages 27-27, mendenhall1998regulationofcdc28 pages 6-8).
7. Function  
   CDK2 is a pivotal regulator of the eukaryotic cell cycle with multiple functions that span both cell proliferation and maintenance of genomic stability. It is primarily active during the G1-to-S phase transition and throughout the S phase, where its activation by cyclin E and later cyclin A triggers the phosphorylation of key substrates required for DNA replication. One of the well‐characterized substrates of CDK2 is the retinoblastoma protein (RB1); its phosphorylation by CDK2 (in collaboration with other CDKs) leads to the release of E2F transcription factors, thereby promoting the transcription of genes essential for DNA synthesis (chohan2015cyclindependentkinase2as pages 1-2, malumbres2005mammaliancyclindependentkinases pages 10-11). In addition, CDK2 phosphorylates other substrates such as NPAT, which regulates histone gene transcription during S phase, and NPM1, whose phosphorylation is implicated in centrosome duplication (chohan2015cyclindependentkinase2as pages 1-2, sielecki2000cyclindependentkinaseinhibitors pages 2-4). Beyond its central role in driving cell cycle transitions, CDK2 is essential for meiosis, as demonstrated by knockout studies in mice where its absence leads to sterility despite largely normal mitotic divisions in somatic cells (chohan2015cyclindependentkinase2as pages 1-2, nigg1995cyclin‐dependentproteinkinases pages 1-2). CDK2 also participates in DNA damage response pathways; for instance, phosphorylation of BRCA2 by CDK2 modulates homologous recombination repair, and its activity within the G1-S DNA damage checkpoint prevents cells with damaged DNA from entering S phase (chohan2015cyclindependentkinase2as pages 22-23, malumbres2005mammaliancyclindependentkinases pages 10-11). Additional substrates include proteins such as MYC, whose phosphorylation by cyclin E/CDK2 prevents oxidative stress‐mediated senescence, and EZH2, which when phosphorylated maintains epigenetic gene silencing (chohan2015cyclindependentkinase2as pages 1-2, malumbres2011physiologicalrelevanceof pages 3-4). Collectively, these functions underscore CDK2’s role in orchestrating a fine balance between cellular proliferation, apoptosis, and DNA repair with defined downstream signaling that includes transcriptional regulation and centrosome duplication (chohan2015cyclindependentkinase2as pages 1-2, tadesse2018cyclindependentkinase2 pages 1-4).
8. Other Comments  
   Several small molecule inhibitors targeting CDK2 have been developed as anticancer agents due to the enzyme’s frequent deregulation in various tumors. Among these, ATP-competitive inhibitors have been designed to exploit the unique features of the CDK2 ATP-binding pocket that differentiate it from closely related kinases; structure–activity relationship studies have informed the development of compounds with improved selectivity profiles (tadesse2018cyclindependentkinase2 pages 33-36, varun2023rohitukinecontentacross pages 16-16). In addition, natural products and their derivatives, such as rohitukine, have demonstrated potent inhibitory activity against CDK2 and are under investigation as leads for anticancer therapy (varun2023rohitukinecontentacross pages 16-16). Disease associations implicate aberrant overexpression or inadequate inhibition of CDK2 in several types of cancer including breast, ovarian, pancreatic, melanoma, and certain hematologic malignancies; in these contexts, dysregulated CDK2 activity contributes to uncontrolled cellular proliferation and genomic instability (chohan2015cyclindependentkinase2as pages 1-2, tadesse2018cyclindependentkinase2 pages 43-47). Notable mutations affecting CDK2 regulation are less frequently reported compared to other cell cycle regulators; however, alterations in the expression or activity of its regulatory cyclins and CDK inhibitors (such as p27^Kip1) can indirectly influence CDK2 function and are sometimes associated with poor clinical prognosis (łukasik2021cyclindependentkinases(cdk) pages 23-25, tadesse2018cyclindependentkinase2 pages 18-23). In therapeutic contexts, CDK2 inhibition is being explored both as monotherapy and in combination with inhibitors of other components of the cell cycle machinery, such as CDK4/6 inhibitors, to achieve synergistic anticancer effects (tadesse2018cyclindependentkinase2 pages 36-39, łukasik2021cyclindependentkinases(cdk) pages 11-12).
9. References  
   chohan2015cyclindependentkinase2as pages 1-2; chohan2015cyclindependentkinase2as pages 22-23; chohan2015cyclindependentkinase2as pages 27-27; harper2001cyclindependentkinases pages 2-4; malumbres2005mammaliancyclindependentkinases pages 10-11; malumbres2005mammaliancyclindependentkinases pages 3-4; malumbres2005mammaliancyclindependentkinases pages 6-7; malumbres2005mammaliancyclindependentkinases pages 7-8; malumbres2014cyclindependentkinases pages 3-5; nigg1995cyclin‐dependentproteinkinases pages 1-2; sielecki2000cyclindependentkinaseinhibitors pages 2-4; sielecki2000cyclindependentkinaseinhibitors pages 5-6; tadesse2018cyclindependentkinase2 pages 1-4; tadesse2018cyclindependentkinase2 pages 12-15; tadesse2018cyclindependentkinase2 pages 33-36; tadesse2018cyclindependentkinase2 pages 39-43; tadesse2018cyclindependentkinase2 pages 4-8; tadesse2018cyclindependentkinase2 pages 43-47; tadesse2018cyclindependentkinase2 pages 8-12; łukasik2021cyclindependentkinases(cdk) pages 1-2; łukasik2021cyclindependentkinases(cdk) pages 11-12; łukasik2021cyclindependentkinases(cdk) pages 22-23; łukasik2021cyclindependentkinases(cdk) pages 29-30; cheng1999dephosphorylationofcyclindependent pages 12-13; ding2020therolesof pages 1-3; elledge1992cdk2encodesa pages 1-2; elledge1992cdk2encodesa pages 5-5; errico2010identificationofsubstrates pages 1-3; errico2010identificationofsubstrates pages 15-16; errico2010identificationofsubstrates pages 4-6; harper2001cyclindependentkinases pages 1-2; lolli2005cak—cyclindependentactivatingkinase pages 3-4; lolli2005cak—cyclindependentactivatingkinase pages 4-5; malumbres2005mammaliancyclindependentkinases pages 1-2; malumbres2011physiologicalrelevanceof pages 3-4; malumbres2014cyclindependentkinases pages 5-6; malumbres2014cyclindependentkinases pages 6-7; malumbres2014cyclindependentkinases pages 8-9; mendenhall1998regulationofcdc28 pages 3-4; mendenhall1998regulationofcdc28 pages 6-8; sielecki2000cyclindependentkinaseinhibitors pages 1-2; suryadinata2010controlofcell pages 3-4; suryadinata2010controlofcell pages 9-10; tadesse2018cyclindependentkinase2 pages 18-23; tadesse2018cyclindependentkinase2 pages 36-39; varun2023rohitukinecontentacross pages 16-16; łukasik2021cyclindependentkinases(cdk) pages 2-4; łukasik2021cyclindependentkinases(cdk) pages 23-25; ding2020therolesof pages 5-7; errico2010identificationofsubstrates pages 16-18.

References

1. (chohan2015cyclindependentkinase2as pages 1-2): Tahir Chohan, Haiyan Qian, Youlu Pan, and Jian-Zhong Chen. Cyclin-dependent kinase-2 as a target for cancer therapy: progress in the development of cdk2 inhibitors as anti-cancer agents. Current medicinal chemistry, 22 2:237-63, Dec 2015. URL: https://doi.org/10.2174/0929867321666141106113633, doi:10.2174/0929867321666141106113633. This article has 207 citations and is from a peer-reviewed journal.
2. (chohan2015cyclindependentkinase2as pages 22-23): Tahir Chohan, Haiyan Qian, Youlu Pan, and Jian-Zhong Chen. Cyclin-dependent kinase-2 as a target for cancer therapy: progress in the development of cdk2 inhibitors as anti-cancer agents. Current medicinal chemistry, 22 2:237-63, Dec 2015. URL: https://doi.org/10.2174/0929867321666141106113633, doi:10.2174/0929867321666141106113633. This article has 207 citations and is from a peer-reviewed journal.
3. (chohan2015cyclindependentkinase2as pages 27-27): Tahir Chohan, Haiyan Qian, Youlu Pan, and Jian-Zhong Chen. Cyclin-dependent kinase-2 as a target for cancer therapy: progress in the development of cdk2 inhibitors as anti-cancer agents. Current medicinal chemistry, 22 2:237-63, Dec 2015. URL: https://doi.org/10.2174/0929867321666141106113633, doi:10.2174/0929867321666141106113633. This article has 207 citations and is from a peer-reviewed journal.
4. (harper2001cyclindependentkinases pages 2-4): and J. W. Harper and P. Adams. Cyclin-dependent kinases. Chemical Reviews, 101:2511-2526, Jul 2001. URL: https://doi.org/10.1021/cr0001030, doi:10.1021/cr0001030. This article has 311 citations and is from a highest quality peer-reviewed journal.
5. (malumbres2005mammaliancyclindependentkinases pages 10-11): Marcos Malumbres and Mariano Barbacid. Mammalian cyclin-dependent kinases. Trends in Biochemical Sciences, 30:630-641, Nov 2005. URL: https://doi.org/10.1016/j.tibs.2005.09.005, doi:10.1016/j.tibs.2005.09.005. This article has 1758 citations and is from a domain leading peer-reviewed journal.
6. (malumbres2005mammaliancyclindependentkinases pages 3-4): Marcos Malumbres and Mariano Barbacid. Mammalian cyclin-dependent kinases. Trends in Biochemical Sciences, 30:630-641, Nov 2005. URL: https://doi.org/10.1016/j.tibs.2005.09.005, doi:10.1016/j.tibs.2005.09.005. This article has 1758 citations and is from a domain leading peer-reviewed journal.
7. (malumbres2005mammaliancyclindependentkinases pages 6-7): Marcos Malumbres and Mariano Barbacid. Mammalian cyclin-dependent kinases. Trends in Biochemical Sciences, 30:630-641, Nov 2005. URL: https://doi.org/10.1016/j.tibs.2005.09.005, doi:10.1016/j.tibs.2005.09.005. This article has 1758 citations and is from a domain leading peer-reviewed journal.
8. (malumbres2005mammaliancyclindependentkinases pages 7-8): Marcos Malumbres and Mariano Barbacid. Mammalian cyclin-dependent kinases. Trends in Biochemical Sciences, 30:630-641, Nov 2005. URL: https://doi.org/10.1016/j.tibs.2005.09.005, doi:10.1016/j.tibs.2005.09.005. This article has 1758 citations and is from a domain leading peer-reviewed journal.
9. (malumbres2014cyclindependentkinases pages 3-5): Marcos Malumbres. Cyclin-dependent kinases. Genome Biology, 15:122-122, Jun 2014. URL: https://doi.org/10.1186/gb4184, doi:10.1186/gb4184. This article has 1880 citations and is from a highest quality peer-reviewed journal.
10. (nigg1995cyclin‐dependentproteinkinases pages 1-2): Erich A. Nigg. Cyclin‐dependent protein kinases: key regulators of the eukaryotic cell cycle. BioEssays, 17:471-480, Jun 1995. URL: https://doi.org/10.1002/bies.950170603, doi:10.1002/bies.950170603. This article has 1318 citations and is from a peer-reviewed journal.
11. (sielecki2000cyclindependentkinaseinhibitors pages 2-4): Thais M. Sielecki, John F. Boylan, Pamela A. Benfield, and George L. Trainor. Cyclin-dependent kinase inhibitors: useful targets in cell cycle regulation. Journal of medicinal chemistry, 43 1:1-18, Jan 2000. URL: https://doi.org/10.1021/jm990256j, doi:10.1021/jm990256j. This article has 455 citations and is from a highest quality peer-reviewed journal.
12. (sielecki2000cyclindependentkinaseinhibitors pages 5-6): Thais M. Sielecki, John F. Boylan, Pamela A. Benfield, and George L. Trainor. Cyclin-dependent kinase inhibitors: useful targets in cell cycle regulation. Journal of medicinal chemistry, 43 1:1-18, Jan 2000. URL: https://doi.org/10.1021/jm990256j, doi:10.1021/jm990256j. This article has 455 citations and is from a highest quality peer-reviewed journal.
13. (tadesse2018cyclindependentkinase2 pages 1-4): Solomon Tadesse, Elizabeth C. Caldon, Wayne Tilley, and Shudong Wang. Cyclin-dependent kinase 2 inhibitors in cancer therapy: an update. Journal of Medicinal Chemistry, 62:4233-4251, Dec 2018. URL: https://doi.org/10.1021/acs.jmedchem.8b01469, doi:10.1021/acs.jmedchem.8b01469. This article has 248 citations and is from a highest quality peer-reviewed journal.
14. (tadesse2018cyclindependentkinase2 pages 12-15): Solomon Tadesse, Elizabeth C. Caldon, Wayne Tilley, and Shudong Wang. Cyclin-dependent kinase 2 inhibitors in cancer therapy: an update. Journal of Medicinal Chemistry, 62:4233-4251, Dec 2018. URL: https://doi.org/10.1021/acs.jmedchem.8b01469, doi:10.1021/acs.jmedchem.8b01469. This article has 248 citations and is from a highest quality peer-reviewed journal.
15. (tadesse2018cyclindependentkinase2 pages 33-36): Solomon Tadesse, Elizabeth C. Caldon, Wayne Tilley, and Shudong Wang. Cyclin-dependent kinase 2 inhibitors in cancer therapy: an update. Journal of Medicinal Chemistry, 62:4233-4251, Dec 2018. URL: https://doi.org/10.1021/acs.jmedchem.8b01469, doi:10.1021/acs.jmedchem.8b01469. This article has 248 citations and is from a highest quality peer-reviewed journal.
16. (tadesse2018cyclindependentkinase2 pages 39-43): Solomon Tadesse, Elizabeth C. Caldon, Wayne Tilley, and Shudong Wang. Cyclin-dependent kinase 2 inhibitors in cancer therapy: an update. Journal of Medicinal Chemistry, 62:4233-4251, Dec 2018. URL: https://doi.org/10.1021/acs.jmedchem.8b01469, doi:10.1021/acs.jmedchem.8b01469. This article has 248 citations and is from a highest quality peer-reviewed journal.
17. (tadesse2018cyclindependentkinase2 pages 4-8): Solomon Tadesse, Elizabeth C. Caldon, Wayne Tilley, and Shudong Wang. Cyclin-dependent kinase 2 inhibitors in cancer therapy: an update. Journal of Medicinal Chemistry, 62:4233-4251, Dec 2018. URL: https://doi.org/10.1021/acs.jmedchem.8b01469, doi:10.1021/acs.jmedchem.8b01469. This article has 248 citations and is from a highest quality peer-reviewed journal.
18. (tadesse2018cyclindependentkinase2 pages 43-47): Solomon Tadesse, Elizabeth C. Caldon, Wayne Tilley, and Shudong Wang. Cyclin-dependent kinase 2 inhibitors in cancer therapy: an update. Journal of Medicinal Chemistry, 62:4233-4251, Dec 2018. URL: https://doi.org/10.1021/acs.jmedchem.8b01469, doi:10.1021/acs.jmedchem.8b01469. This article has 248 citations and is from a highest quality peer-reviewed journal.
19. (tadesse2018cyclindependentkinase2 pages 8-12): Solomon Tadesse, Elizabeth C. Caldon, Wayne Tilley, and Shudong Wang. Cyclin-dependent kinase 2 inhibitors in cancer therapy: an update. Journal of Medicinal Chemistry, 62:4233-4251, Dec 2018. URL: https://doi.org/10.1021/acs.jmedchem.8b01469, doi:10.1021/acs.jmedchem.8b01469. This article has 248 citations and is from a highest quality peer-reviewed journal.
20. (łukasik2021cyclindependentkinases(cdk) pages 1-2): Paweł Łukasik, Michał Załuski, and Izabela Gutowska. Cyclin-dependent kinases (cdk) and their role in diseases development–review. International Journal of Molecular Sciences, 22:2935, Mar 2021. URL: https://doi.org/10.3390/ijms22062935, doi:10.3390/ijms22062935. This article has 199 citations and is from a peer-reviewed journal.
21. (łukasik2021cyclindependentkinases(cdk) pages 11-12): Paweł Łukasik, Michał Załuski, and Izabela Gutowska. Cyclin-dependent kinases (cdk) and their role in diseases development–review. International Journal of Molecular Sciences, 22:2935, Mar 2021. URL: https://doi.org/10.3390/ijms22062935, doi:10.3390/ijms22062935. This article has 199 citations and is from a peer-reviewed journal.
22. (łukasik2021cyclindependentkinases(cdk) pages 22-23): Paweł Łukasik, Michał Załuski, and Izabela Gutowska. Cyclin-dependent kinases (cdk) and their role in diseases development–review. International Journal of Molecular Sciences, 22:2935, Mar 2021. URL: https://doi.org/10.3390/ijms22062935, doi:10.3390/ijms22062935. This article has 199 citations and is from a peer-reviewed journal.
23. (łukasik2021cyclindependentkinases(cdk) pages 29-30): Paweł Łukasik, Michał Załuski, and Izabela Gutowska. Cyclin-dependent kinases (cdk) and their role in diseases development–review. International Journal of Molecular Sciences, 22:2935, Mar 2021. URL: https://doi.org/10.3390/ijms22062935, doi:10.3390/ijms22062935. This article has 199 citations and is from a peer-reviewed journal.
24. (cheng1999dephosphorylationofcyclindependent pages 12-13): A. Cheng, K. E. Ross, P. Kaldis, and M. J. Solomon. Dephosphorylation of cyclin-dependent kinases by type 2c protein phosphatases. Genes & Development, 13:2946-2957, Nov 1999. URL: https://doi.org/10.1101/gad.13.22.2946, doi:10.1101/gad.13.22.2946. This article has 197 citations.
25. (ding2020therolesof pages 1-3): L. Ding, Jiaqi Cao, Wen-Lien Lin, Hongjian Chen, Xianhui Xiong, Hongshun Ao, Min Yu, Jie Lin, and Qing-hua Cui. The roles of cyclin-dependent kinases in cell-cycle progression and therapeutic strategies in human breast cancer. International Journal of Molecular Sciences, 21:1960, Mar 2020. URL: https://doi.org/10.3390/ijms21061960, doi:10.3390/ijms21061960. This article has 610 citations and is from a peer-reviewed journal.
26. (elledge1992cdk2encodesa pages 1-2): S J Elledge, R Richman, F L Hall, R T Williams, N Lodgson, and J W Harper. Cdk2 encodes a 33-kda cyclin a-associated protein kinase and is expressed before cdc2 in the cell cycle. Proceedings of the National Academy of Sciences, 89:2907-2911, Apr 1992. URL: https://doi.org/10.1073/pnas.89.7.2907, doi:10.1073/pnas.89.7.2907. This article has 286 citations.
27. (elledge1992cdk2encodesa pages 5-5): S J Elledge, R Richman, F L Hall, R T Williams, N Lodgson, and J W Harper. Cdk2 encodes a 33-kda cyclin a-associated protein kinase and is expressed before cdc2 in the cell cycle. Proceedings of the National Academy of Sciences, 89:2907-2911, Apr 1992. URL: https://doi.org/10.1073/pnas.89.7.2907, doi:10.1073/pnas.89.7.2907. This article has 286 citations.
28. (errico2010identificationofsubstrates pages 1-3): Alessia Errico, Krupa Deshmukh, Yoshimi Tanaka, Andrei Pozniakovsky, and Tim Hunt. Identification of substrates for cyclin dependent kinases. Advances in Enzyme Regulation, 50:375-399, Jan 2010. URL: https://doi.org/10.1016/j.advenzreg.2009.12.001, doi:10.1016/j.advenzreg.2009.12.001. This article has 167 citations.
29. (errico2010identificationofsubstrates pages 15-16): Alessia Errico, Krupa Deshmukh, Yoshimi Tanaka, Andrei Pozniakovsky, and Tim Hunt. Identification of substrates for cyclin dependent kinases. Advances in Enzyme Regulation, 50:375-399, Jan 2010. URL: https://doi.org/10.1016/j.advenzreg.2009.12.001, doi:10.1016/j.advenzreg.2009.12.001. This article has 167 citations.
30. (errico2010identificationofsubstrates pages 4-6): Alessia Errico, Krupa Deshmukh, Yoshimi Tanaka, Andrei Pozniakovsky, and Tim Hunt. Identification of substrates for cyclin dependent kinases. Advances in Enzyme Regulation, 50:375-399, Jan 2010. URL: https://doi.org/10.1016/j.advenzreg.2009.12.001, doi:10.1016/j.advenzreg.2009.12.001. This article has 167 citations.
31. (harper2001cyclindependentkinases pages 1-2): and J. W. Harper and P. Adams. Cyclin-dependent kinases. Chemical Reviews, 101:2511-2526, Jul 2001. URL: https://doi.org/10.1021/cr0001030, doi:10.1021/cr0001030. This article has 311 citations and is from a highest quality peer-reviewed journal.
32. (lolli2005cak—cyclindependentactivatingkinase pages 3-4): Graziano Lolli and Louise N. Johnson. Cak—cyclin-dependent activating kinase: a key kinase in cell cycle control and a target for drugs? Cell Cycle, 4:565-570, Jan 2005. URL: https://doi.org/10.4161/cc.4.4.1607, doi:10.4161/cc.4.4.1607. This article has 309 citations and is from a peer-reviewed journal.
33. (lolli2005cak—cyclindependentactivatingkinase pages 4-5): Graziano Lolli and Louise N. Johnson. Cak—cyclin-dependent activating kinase: a key kinase in cell cycle control and a target for drugs? Cell Cycle, 4:565-570, Jan 2005. URL: https://doi.org/10.4161/cc.4.4.1607, doi:10.4161/cc.4.4.1607. This article has 309 citations and is from a peer-reviewed journal.
34. (malumbres2005mammaliancyclindependentkinases pages 1-2): Marcos Malumbres and Mariano Barbacid. Mammalian cyclin-dependent kinases. Trends in Biochemical Sciences, 30:630-641, Nov 2005. URL: https://doi.org/10.1016/j.tibs.2005.09.005, doi:10.1016/j.tibs.2005.09.005. This article has 1758 citations and is from a domain leading peer-reviewed journal.
35. (malumbres2011physiologicalrelevanceof pages 3-4): Marcos Malumbres. Physiological relevance of cell cycle kinases. Physiological Reviews, 91:973-1007, Jul 2011. URL: https://doi.org/10.1152/physrev.00025.2010, doi:10.1152/physrev.00025.2010. This article has 300 citations and is from a highest quality peer-reviewed journal.
36. (malumbres2014cyclindependentkinases pages 5-6): Marcos Malumbres. Cyclin-dependent kinases. Genome Biology, 15:122-122, Jun 2014. URL: https://doi.org/10.1186/gb4184, doi:10.1186/gb4184. This article has 1880 citations and is from a highest quality peer-reviewed journal.
37. (malumbres2014cyclindependentkinases pages 6-7): Marcos Malumbres. Cyclin-dependent kinases. Genome Biology, 15:122-122, Jun 2014. URL: https://doi.org/10.1186/gb4184, doi:10.1186/gb4184. This article has 1880 citations and is from a highest quality peer-reviewed journal.
38. (malumbres2014cyclindependentkinases pages 8-9): Marcos Malumbres. Cyclin-dependent kinases. Genome Biology, 15:122-122, Jun 2014. URL: https://doi.org/10.1186/gb4184, doi:10.1186/gb4184. This article has 1880 citations and is from a highest quality peer-reviewed journal.
39. (mendenhall1998regulationofcdc28 pages 3-4): Michael D. Mendenhall and Amy E. Hodge. Regulation of cdc28 cyclin-dependent protein kinase activity during the cell cycle of the yeast saccharomyces cerevisiae. Microbiology and Molecular Biology Reviews, 62:1191-1243, Dec 1998. URL: https://doi.org/10.1128/mmbr.62.4.1191-1243.1998, doi:10.1128/mmbr.62.4.1191-1243.1998. This article has 675 citations and is from a domain leading peer-reviewed journal.
40. (mendenhall1998regulationofcdc28 pages 6-8): Michael D. Mendenhall and Amy E. Hodge. Regulation of cdc28 cyclin-dependent protein kinase activity during the cell cycle of the yeast saccharomyces cerevisiae. Microbiology and Molecular Biology Reviews, 62:1191-1243, Dec 1998. URL: https://doi.org/10.1128/mmbr.62.4.1191-1243.1998, doi:10.1128/mmbr.62.4.1191-1243.1998. This article has 675 citations and is from a domain leading peer-reviewed journal.
41. (sielecki2000cyclindependentkinaseinhibitors pages 1-2): Thais M. Sielecki, John F. Boylan, Pamela A. Benfield, and George L. Trainor. Cyclin-dependent kinase inhibitors: useful targets in cell cycle regulation. Journal of medicinal chemistry, 43 1:1-18, Jan 2000. URL: https://doi.org/10.1021/jm990256j, doi:10.1021/jm990256j. This article has 455 citations and is from a highest quality peer-reviewed journal.
42. (suryadinata2010controlofcell pages 3-4): Randy Suryadinata, Martin Sadowski, and Boris Sarcevic. Control of cell cycle progression by phosphorylation of cyclin-dependent kinase (cdk) substrates. Bioscience reports, 30 4:243-55, Aug 2010. URL: https://doi.org/10.1042/bsr20090171, doi:10.1042/bsr20090171. This article has 227 citations and is from a peer-reviewed journal.
43. (suryadinata2010controlofcell pages 9-10): Randy Suryadinata, Martin Sadowski, and Boris Sarcevic. Control of cell cycle progression by phosphorylation of cyclin-dependent kinase (cdk) substrates. Bioscience reports, 30 4:243-55, Aug 2010. URL: https://doi.org/10.1042/bsr20090171, doi:10.1042/bsr20090171. This article has 227 citations and is from a peer-reviewed journal.
44. (tadesse2018cyclindependentkinase2 pages 18-23): Solomon Tadesse, Elizabeth C. Caldon, Wayne Tilley, and Shudong Wang. Cyclin-dependent kinase 2 inhibitors in cancer therapy: an update. Journal of Medicinal Chemistry, 62:4233-4251, Dec 2018. URL: https://doi.org/10.1021/acs.jmedchem.8b01469, doi:10.1021/acs.jmedchem.8b01469. This article has 248 citations and is from a highest quality peer-reviewed journal.
45. (tadesse2018cyclindependentkinase2 pages 36-39): Solomon Tadesse, Elizabeth C. Caldon, Wayne Tilley, and Shudong Wang. Cyclin-dependent kinase 2 inhibitors in cancer therapy: an update. Journal of Medicinal Chemistry, 62:4233-4251, Dec 2018. URL: https://doi.org/10.1021/acs.jmedchem.8b01469, doi:10.1021/acs.jmedchem.8b01469. This article has 248 citations and is from a highest quality peer-reviewed journal.
46. (varun2023rohitukinecontentacross pages 16-16): E. Varun, K. Bhakti, K. Aishwarya, R Hosur Suraj, M.R. Jagadish, and P. Mohana Kumara. Rohitukine content across the geographical distribution of dysoxylum binectariferum hook f. and its natural derivatives as potential sources of cdk inhibitors. Heliyon, 9:e13469, Feb 2023. URL: https://doi.org/10.1016/j.heliyon.2023.e13469, doi:10.1016/j.heliyon.2023.e13469. This article has 6 citations and is from a peer-reviewed journal.
47. (łukasik2021cyclindependentkinases(cdk) pages 2-4): Paweł Łukasik, Michał Załuski, and Izabela Gutowska. Cyclin-dependent kinases (cdk) and their role in diseases development–review. International Journal of Molecular Sciences, 22:2935, Mar 2021. URL: https://doi.org/10.3390/ijms22062935, doi:10.3390/ijms22062935. This article has 199 citations and is from a peer-reviewed journal.
48. (łukasik2021cyclindependentkinases(cdk) pages 23-25): Paweł Łukasik, Michał Załuski, and Izabela Gutowska. Cyclin-dependent kinases (cdk) and their role in diseases development–review. International Journal of Molecular Sciences, 22:2935, Mar 2021. URL: https://doi.org/10.3390/ijms22062935, doi:10.3390/ijms22062935. This article has 199 citations and is from a peer-reviewed journal.
49. (ding2020therolesof pages 5-7): L. Ding, Jiaqi Cao, Wen-Lien Lin, Hongjian Chen, Xianhui Xiong, Hongshun Ao, Min Yu, Jie Lin, and Qing-hua Cui. The roles of cyclin-dependent kinases in cell-cycle progression and therapeutic strategies in human breast cancer. International Journal of Molecular Sciences, 21:1960, Mar 2020. URL: https://doi.org/10.3390/ijms21061960, doi:10.3390/ijms21061960. This article has 610 citations and is from a peer-reviewed journal.
50. (errico2010identificationofsubstrates pages 16-18): Alessia Errico, Krupa Deshmukh, Yoshimi Tanaka, Andrei Pozniakovsky, and Tim Hunt. Identification of substrates for cyclin dependent kinases. Advances in Enzyme Regulation, 50:375-399, Jan 2010. URL: https://doi.org/10.1016/j.advenzreg.2009.12.001, doi:10.1016/j.advenzreg.2009.12.001. This article has 167 citations.