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Cyclin F: A component of an E3 ubiquitin ligase complex with roles in neurodegeneration and cancer.

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## Abstract

Cyclin F, encoded by *CCNF*, is the substrate recognition component of the Skp1-Cul1-F-box E3 ubiquitin ligase complex, SCF<sup>Cyclin F</sup>. E3 ubiquitin ligases play a key role in ubiquitin-proteasome mediated protein degradation, an essential component of protein homeostatic mechanisms within the cell. By recognising and regulating the availability of several protein substrates, SCF<sup>Cyclin F</sup> plays a role in regulating various cellular processes including replication and repair of DNA and cell cycle checkpoint control. Cyclin F dysfunction has been implicated in various forms of cancer and *CCNF* mutations were recently linked to familial and sporadic amyotrophic lateral sclerosis and frontotemporal dementia, offering a new lead to understanding the pathogenic mechanisms underlying neurodegeneration. In this review, we evaluate the current literature on the function of cyclin F with an emphasis on its roles in cancer and neurodegeneration.

## Key facts

- Cyclin F is the substrate recognition component of an E3 ubiquitin ligase complex that mediates substrate degradation through the ubiquitin-proteasome system.

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