

A new classification of protein kinases with relevance in cell biology and cancer

Madrid, November 5th, 2009 – An international consortium coordinated by the Spanish National Cancer Research Centre (CNIO) has proposed a new classification for a specific family of protein kinases with relevance in cell biology and cancer. This proposal has been published this week in *Nature Cell Biology*.

The Human Genome Project has significantly contributed to our knowledge of the genetic basis of our cells and the identification of new genetic alterations with implications in different diseases. However, much of the information generated needs still to be properly processed to understand its relevance for human biology and disease. An international consortium coordinated by Marcos Malumbres, Head of the Cell Division and Cancer Group (CNIO), has proposed this week in *Nature Cell Biology* a new classification for a group of molecules with protein kinase activity and relevant functions in cell proliferation and gene expression. The consortium includes international experts on protein kinases such as Edward Harlow (Harvard Medical School, USA), Tim Hunt (Nobel Laureate in 2001; Cancer Research, UK), Tony Hunter (Salk Institute, La Jolla, USA), Jill M. Lahti (St. Jude Research Hospital, USA), Gerard Manning (Salk Institute, La Jolla, USA), David O. Morgan (University of California in San Francisco, USA), Li-Huei Tsai (Howard Hughes Medical Institute and Broad Institute/MIT of Harvard, USA) and Debra J. Wolgemuth (Columbia University, USA).

In this work, the consortium coordinated by Marcos Malumbres has proposed a new classification for a group of 21 proteins with relevant functions in the cell division cycle, cell proliferation and gene transcription and translation. Eight proteins that previously received different names are now proposed to belong to the family of Cyclin-dependent kinases or CDKs. The consortium has reviewed the available information for these proteins and has concluded that they should be considered as CDKs on the basis of functional and structural data. This proposal may have direct and practical consequences. First, the new classification has been already accepted by the HUGO Gene Nomenclature Committee (HGNC) and the Mouse Genomic Nomenclature Committee (MGNC), the two major institutions in charge of curating gene nomenclature in mammals. The consortium hopes that this study will bring the interest of researches to properly analyze in detail these proteins that so far have received little attention in laboratories.

Second, CDKs have been considered in the last years as relevant therapeutic targets for several diseases such as cancer and other proliferative illness. In fact, some small molecule CDK inhibitors are currently being tested in clinical assays for cancer treatment. As concluded in the text, the therapeutic value of these new CDKs has remained unexplored probably as a consequence of the previous classification and

their former gene names. The consortium hopes that this new classification will increase awareness of the potential importance of these new CDKs as therapeutic targets in human disease. Researchers and drug discoverers in pharmaceutical companies should keep in mind these new CDKs when testing new drugs for cancer treatment.

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