Tumor Necrosis Factor and the Tenacious

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Tumor necrosis factor (TNF) is a central cytokine in inflammation and an important therapeutic target in dermatology. For reasons unknown, TNF is still referred to as TNF-α in numerous newly published scientific papers, almost 2 decades after the cytokine was renamed. Of notice, this transgression is common in biomedical science, not limited to dermatology.

In 1975, Carswell and colleagues1 identified TNF from human serum as responsible for necrosis in different tumors in mice. Demonstration of functional and sequential homology of TNF and the previously discovered cytotoxic factor lymphotoxin in 1985 resulted in renaming of TNF as TNF-α and lymphotoxin as TNF-β.2 These 2 cytokines laid the foundation for the isolation and identification of the larger family of cytokines, now known as the TNF superfamily. In 1993, a close homologue of lymphotoxin, the lymphotoxin-β, was discovered.3 Subsequently, at the Seventh International TNF Congress (May 17-21, 1998; Hyannis, Massachusetts), the name “TNF-β” was changed to “lymphotoxin-α.” Concurrently, “TNF-α” became an orphan term with no meaning different from the original term, “TNF,” which was reinstated as official name of the cytokine.

Ideally, protein names and symbols would be identical to those used for the gene. The official symbol of the cytokine gene by the HUGO Nomenclature Committee is TNF. Also the international Universal Protein Resource (UniProt) recommends tumor necrosis factor as the name of the protein. A consistent use of approved nomenclature will facilitate data retrieval using unique approved symbols as search terms in central databases such as PubMed, GenBank, and OMIM. This warrants abandoning the term “TNF-α” when referring to tumor necrosis factor, probably the most featured signal molecule in dermatology.

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