- Chan, F. K., Siegel, M. R. & Lenardo, J. M. Signaling by the TNF receptor superfamily and T cell homeostasis. *Immunity* 13, 419–422 (2000).
- Yang, Y., Fang, S., Jensen, J. P., Weissman, A. M. & Ashwell, J. D. Ubiquitin protein ligase activity of IAPs and their degradation in proteasomes in response to apoptotic stimuli. *Science* 288, 874–877 (2000).
- Tschopp, J., Martinon, F. & Hofmann, K. Apoptosis: Silencing the death receptors. *Curr. Biol.* 9, R381–R384 (1999).
- Van Antwerp, D. J., Martin, S. J., Kafri, T., Green, D. R. & Verma, I. M. Suppression of TNF-α-induced apoptosis by NF-κB. Science 274, 787–789 (1996).
- Liu, Z. G., Hsu, H., Goeddel, D. V. & Karin, M. Dissection of TNF receptor 1 effector functions: JNK activation is not linked to apoptosis while NF-κB activation prevents cell death. *Cell* 87, 565–576 (1996).
- Deveraux, Q. L. *et al.* IAPs block apoptotic events induced by caspase-8 and cytochrome *c* by direct inhibition of distinct caspases. *EMBO J.* 17, 2215–2223 (1998).
- Roy, N., Deveraux, Q. L., Takahashi, R., Salvesen, G. S. & Reed, J. C. The c-IAP-1 and c-IAP-2 proteins are direct inhibitors of specific caspases. *EMBO J.* 16, 6914–6925 (1997).
- Sarin, A., Conan-Cibotti, M. & Henkart, P. A. Cytotoxic effect of TNF and lymphotoxin on T lymphoblasts. J. Immunol. 155, 3716–3718 (1995).
- Zheng, L. *et al.* Induction of apoptosis in mature T cells by tumour necrosis factor. *Nature* 377, 348–351 (1995).
- Duckett, C. S. et al. A conserved family of cellular genes related to the baculovirus iap gene and encoding apoptosis inhibitors. EMBO J. 15, 2685–2694 (1996).
- Chan, F. K. & Lenardo, M. J. A crucial role for p80 TNF-R2 in amplifying p60 TNF-R1 apoptosis signals in T lymphocytes. *Eur. J. Immunol.* **30**, 652–660 (2000).
- Arch, R. H., Gedrich, R. W. & Thompson, C. B. Translocation of TRAF proteins regulates apoptotic threshold of cells. *Biochem. Biophys. Res. Commun.* 272, 936–945 (2000).
- Huang, H. et al. The inhibitor of apoptosis, cIAP2, functions as a ubiquitin-protein ligase and promotes in vitro ubiquitination of caspases-3 and -7. J. Biol. Chem. 275, 26661–26664 (2000).
- Rothe, M., Wong, S. C., Henzel, W. J. & Goeddel, D. V. A novel family of putative signal transducers associated with the cytoplasmic domain of the 75 kDa tumor necrosis factor receptor. *Cell* 78, 681–692 (1994).
- Rothe, M., Sarma, V., Dixit, V. M. & Goeddel, D. V. TRAF2-mediated activation of NF-κB by TNF receptor 2 and CD40. *Science* 269, 1424–1427 (1995).
- Reinhard, C., Shamoon, B., Shyamala, V. & Williams, L. T. Tumor necrosis factor α-induced activation of c-jun N-terminal kinase is mediated by TRAF2. *EMBO J.* 16, 1080–1092 (1997).
- 22. Weiss, T. et al. Enhancement of TNF receptor p60-mediated cytotoxicity by TNF receptor p80:
- requirement of the TNF receptor-associated factor-2 binding site. J. Immunol. 158, 2398–2404 (1997).
  Weiss, T. et al. TNFR80-dependent enhancement of TNFR60-induced cell death is mediated by TNFR-associated factor 2 and is specific for TNFR60. J. Immunol. 161, 3136–3142 (1998).
- Erickson, S. L. et al. Decreased sensitivity to tumour-necrosis factor but normal T-cell development in TNF receptor-2-deficient mice. Nature 372, 560–563 (1994).
- Clem, R. J. et al. c-IAP1 is cleaved by caspases to produce a pro-apoptotic C-terminal fragment. J. Biol. Chem. 276, 7602–7608 (2000).
- Duckett, C. S. & Thompson, C. B. CD30-dependent degradation of TRAF2: implications for negative regulation of TRAF signaling and the control of cell survival. *Genes Dev.* 11, 2810–2821 (1997).
- Brown, K. D., Hostager, B. S. & Bishop, G. A. Differential signaling and tumor necrosis factor receptorassociated factor (traf) degradation mediated by CD40 and the epstein-barr virus oncoprotein latent membrane protein 1 (Imp1). J. Exp. Med. 193, 943–954 (2001).
- Peschon, J. J. et al. TNF receptor-deficient mice reveal divergent roles for p55 and p75 in several models of inflammation. J. Immunol. 160, 943–952 (1998).
- Lorick, K. L. et al. RING fingers mediate ubiquitin conjugating enzyme (E2)-dependent ubiquitination. Proc. Natl Acad. Sci. USA 96, 11364–11369 (1999).
- Memon, S. A., Petrak, D., Moreno, M. B. & Zacharchuk, C. M. A simply assay for examining the effect of transiently expressed genes on programmed cell death. J. Immunol. Methods 180, 15–24 (1995).

Supplementary Information accompanies the paper on *Nature's* website (http://www.nature.com).

#### Acknowledgements

We are grateful to A. Weissman, C. Duckett, and Z. Liu for provision of reagents and reviews of this manuscript. X.L. is a visiting fellow from Bethune International Hospital, China.

#### **Competing interests statement**

The authors declare that they have no competing financial interests.

Correspondence and requests for materials should be addressed to J.D.A. (e-mail: jda@pop.nci.nih.gov).

### correction

# Effects of experience and social context on prospective caching strategies by scrub jays

#### N. J. Emery & N. S. Clayton

Nature 414, 443-446 (2001).

The exact number of species of American jays is a matter of debate<sup>1</sup>. This is particularly evident within the scrub-jay lineage of *Aphelocoma*<sup>2</sup>. Traditionally, *A. coerulescens* included the Florida scrub-jay and the western scrub-jay, among others. It has recently been brought to our attention that the Committee on Classification and Nomenclature of the American Ornithologists' Union now use *A. coerulescens* to refer exclusively to the Florida scrub-jay and *A. californica* to refer to the western scrub-jay<sup>2</sup>. The birds used in the Emery & Clayton<sup>3</sup> and Clayton & Dickinson<sup>4</sup> studies were western scrub-jays: *A. californica*, not *A. coerulescens*. We therefore wish to correct the oversight in this paper and our other papers using these birds, and apologize for any confusion that has arisen. We thank R. Curry, T. Langen and G. Woolfenden for alerting us to the change in nomenclature.

- Madge, S. & Burn, H. Crows and Jays. A Guide to the Crows, Jays and Magpies of the World (Houghton Mifflin, New York, 1999).
- American Ornithologists' Union Check-list of North American Birds 7th edn (American Ornithologists' Union, Washington DC, 1998).
- Emery, N. J. & Clayton, N. S. Effects of experience and social context on prospective caching strategies by scrub jays. *Nature* 414, 443–446 (2001).
- Clayton, N. S. & Dickinson, A. Episodic-like memory during cache recovery by scrub jays. *Nature* 395, 272–278 (1998).

## erratum

# Tyrannosaurus was not a fast runner

#### John R. Hutchinson & Mariano Garcia

Nature 415, 1018–1021 (2002).

In this Letter, the row in Table 1 corresponding to '*Gallus*,  $m_i$  (% $m_{body}$ )' should read: 1.1, 0.08, 2.0 and 1.5 for the hip, knee, ankle and toe respectively.