What does the ‘Akt’ Stand for in the Name ‘Akt Kinase’?

Jiuyong Xie*, Professor, Department of Physiology & Pathophysiology, Max Rady College of Medicine, Rady Faculty of Health Sciences, The University of Manitoba, Rm 440 BMSB, 745 Bannatyne Ave., Winnipeg, MB R3E 0J9, CANADA

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*: Correspondence E-mail: xiej@umanitoba.ca
  Phone: +1-204 975-7774 (O)
  Fax: +1-204 789-3934

Summary
The origin of ‘Akt’ in the ‘Akt kinase’ (also called protein kinase B or PKB) is explained based on the original research papers describing the related information tracing back to 1933, for those (particularly students) who are curious about this question.

Explanation
Stimulated by the ‘a serine/threonine protein kinase’ put for the abbreviation Akt kinase by a student, I googled around for the meaning of ‘Akt’ but no clear answer was found, to my surprise.

My further search in the literature resulted in the following findings:

1. The 1986 paper by Dr. Stephen P. Staal of the Johns Hopkins Oncology Centre, on ‘Molecular cloning of the akt oncogene and its human homologues AKTI and AKT2: Amplification of AKTI in a primary human gastric adenocarcinoma’[1], mentioned ‘the isolation of a directly transforming retrovirus, AKT8 from a spontaneous thymoma of an AKR mouse’. I assume that the ‘AK’ was carried from the ‘AKR’ of the mouse name, and the ‘T’ was for the word ‘transforming’ describing the retrovirus. The viral oncogene isolated from the AKT8 was named v-akt. Therefore the letters of the gene likely stand for the same.

2. The name AKR for the mouse strain was specifically explained by Dr. Clara Lynch of the Rockefeller Institute for Medical Research in a 1954 paper ‘The R.I.L. strain of mice: its relation to the leukemic AK strain and AKR substrains’[2]. She explained: ‘The appellation AKR has now been adopted for the substrains to indicate the derivation of the random-bred colony from AK stock and the subsequent brother x sister breeding at the Rockefeller Institute’, in line with the recommendations by the nomenclature committee[3]. Therefore, the ‘R’ in ‘AKR’ should stand for Rockefeller. She also mentioned the ‘AK stock of Dr. J. Furth’, suggesting that the letters ‘AK’ was from Dr. Furth.

3. The meaning of ‘AK’ was clearly explained in a 1933 paper ‘Experimental Studies on Lymphomatosis of Mice’ by Dr. Furth and colleagues of the Cornell University Medical College and the University of Pennsylvania[4]. It said: ‘mice of three different
stocks bred by us and designated as A, R, and S’, followed later by ‘the inbred families (of each stock) are designated by a second small letter added to the capitals A, R, and S respectively (e.g. Aa, .....).’ One of the strains is named Ak30, as described later in the paper. The meanings of A, R, etc. were not found to be explained there.

Taken together these points, it seems that the origin of the name for the mouse homologue Akt of the viral v-akt gene product could be at least interpreted as ‘a serine/threonine protein kinase encoded by the oncogene in the transforming retrovirus isolated from the Stock A Strain (AK) mouse inbred in the Rockefeller Institute (AKR)’. Same interpretation applies to the human AKT kinases and genes.

If any issues were noticed regarding this, corrections are welcome via email to xiej@umanitoba.ca.

Thank you.

By Jiuyong Xie, January 25, 2017, in Winnipeg, MB, CANADA

References: