行政院國家科學委員會補助專題研究計畫成果報告

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※　薑黃素於移植醫學之應用：抗排斥及器官保護作用　※
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計畫類別：☑個別型計畫　　□整合型計畫

計畫編號：NSC 89－2314－B002－152

執行期間：88 年 8 月 1 日至 89 年 7 月 31 日

計畫主持人：關士傑

共同主持人：賴明坤

計畫參與人員：鄭劍廷

劉穎昇

鄧方晟

本成果報告包括以下應繳交之附件：

□赴國外出差或研習心得報告一份

□赴大陸地區出差或研習心得報告一份

□出席國際學術會議心得報告及發表之論文各一份

□國際合作研究計畫國外研究報告書一份

執行單位：台大醫學院 泌尿科

中　華　民　國　89　年　10　月　30　日

1.Background:

Curcumin (diferuoylmethane, CCM) is a dietary pigment in curry and a phenolic component of common spice, turmeric. The antineoplastic effect of curcumin has been discussed a lot, but only a few papers demonstrated its application in transplantatioin. In vitro, CCM was shown to block cyclosporine A (CsA)-resistant CD28 costimulatory pathway of human T-cell proliferation. This is the first in vivo study to evaluate CCM as a novel adjuvant immunosuppressant.

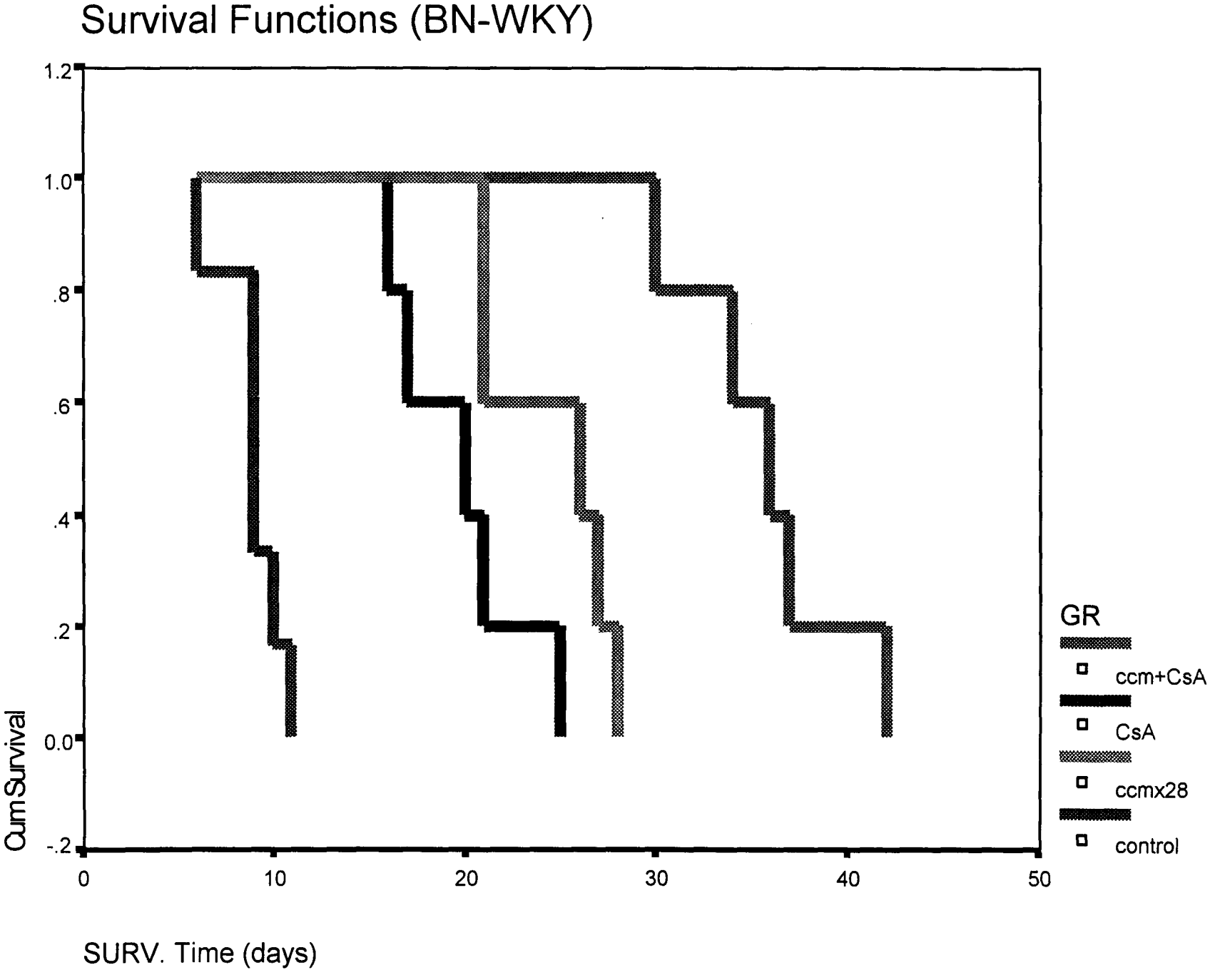
2.Materials and Methods:

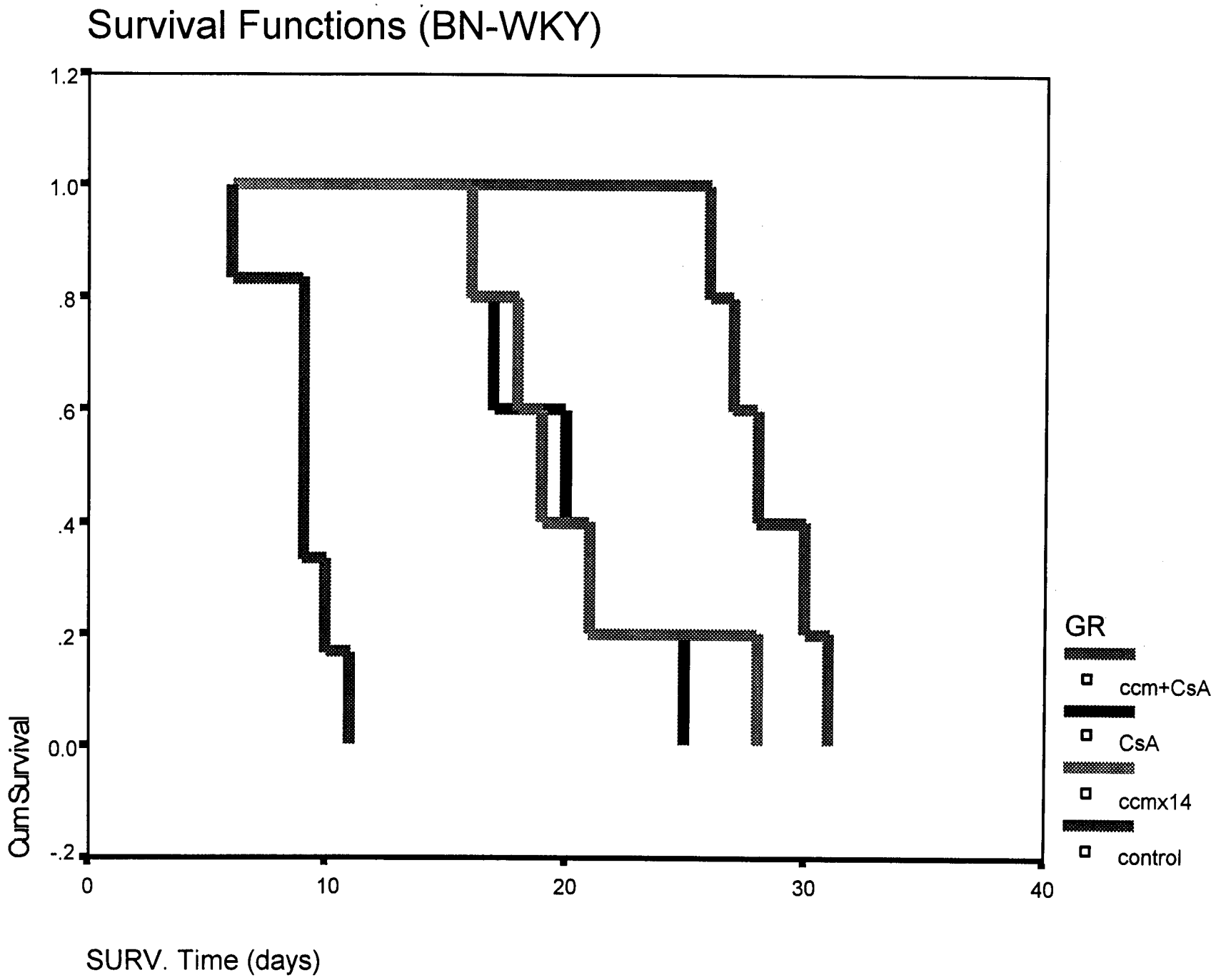
Immunosuppressive effect of CCM was studied in vivo with a rat heterotopic cardiac transplantation model. BrownNorway (BN, RT1n) hearts were grafted to WKY (RT1u) hosts or Buffalo (BUF, RT1b) hearts to Wistar-Furth (WF, RT1u) hosts. CCM alone or in combined with subtherapeutic doses of CsA were tested. Graft survival was monitored by daily palpation of heartbeats.

3.Results:

In BN to WKY model, CCM alone significantly increased the mean survival time (MST) +/- SD to 20.5+/-7.8 (100 mg/d x 14 d), and 24.5+/-6.3 (100 mg/d x 28d) days, as compared to 9.1+/- 1.9 d of non-treated controls. Combination of CCM and subtherapeutic doses of CsA (10 mg/kg/d x 7d) produced further prolongation of MSTs to 28.5+/-5.1 and 35.6+/-5.9 days, better than that of CCM or CsA alone ($P< 0.05$). In BUF to WF model, CCM alone did not increased the MST, but when CCM and subtherapeutic doses of CsA were combined, two thirds of the grafts survived for more than 60 days ($P< 0.05$ as compared to either treatment group).

Conclusion: For the first time, this study demonstrated the effectiveness of curcumin as a novel adjuvant immunosuppressant in an in vivo rodent cardiac allograft model.


Survival Functions (BN-WKY)
1.2
1.0
.8
.6
.4
.2
0.0
-.2
CumSurvival
0
10
20
30
40
50
SURV. Time (days)
GR
ccm+CsA
CsA
ccmx28
control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ccmx14
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