

CONTENTS

Opening address of the President of the International Society of Hypertension. ALBERTO ZANCHETTI	1s
Opening Remarks. EDWARD D. FROHLICH	3s
Address on the occasion of the presentation of the Merck Sharp and Dohme International Award to DR JEHOIADA J. BROWN, DR ANTHONY F. LEVER and DR J. IAN S. ROBERTSON and the Franz Volhard Award to DR EDGAR HABER and of the Drs C. and F. Demuth Medical Foundation Awards for Young Investigators. ALBERTO ZANCHETTI	5s
The Fifth Volhard Lecture: Specific inhibitors of renin. E. HABER	7s
 I. Renin-angiotensin system	
Renin precursor and its activation mechanism in hog kidney. K. MURAKAMI, S. TAKAHASHI, S. HIROSE, Y. TAKII and T. INAGAMI	21s
Interconversion between high- and low-molecular-weight forms of renin in dog kidney. K. YAMAMOTO, F. IKEMOTO, M. KAWAMURA and K. TAKAORI	25s
An inactive, prorenin-like substance in human kidney and plasma. S. A. ATLAS, J. H. LARAGH, JEAN E. SEALEY and T. E. HESSON	29s
Active and inactive renin in individual juxtaglomerular apparatuses. A. GILLIES, T. MORGAN and W. FITZGIBBON	35s
A comparison of multiple forms of renin in rat renal perfusate with those in renal extract. H. NAKANE, Y. NAKANE, J. MISUMI, T. SARUTA, P. CORVOL and J. MENARD	37s
Immunochemical differences between angiotensin I-forming enzymes in man. J. MENARD, F.-X. GALEN, C. DEVAUX, N. KOPP, COLETTE AUZAN and P. CORVOL	41s
Identification of renin and renin-like enzymes in rat brain by a renin-specific antibody. V. J. DZAU, AMY BRENNER, NEREMIAH EMMETT and E. HABER	45s
Renin in rat and mouse brain: immunohistochemical identification and localization. T. INAGAMI, M. R. CELIO, D. L. CLEMENS, D. LAU, Y. TAKII, A. G. KASSELBERG and S. HIROSE	49s
Brain angiotensin II stimulates release of pituitary hormones, plasma catecholamines and increases blood pressure in dogs. B. A. SCHÖLKENS, W. JUNG, W. RASCHER, A. SCHÖMIG and D. GANTEN	53s
Immunocytochemical localization of angiotensin II and vasopressin in rat hypothalamus: evidence for production in the same neuron. M. M. KILCOYNE, D. L. HOFFMAN and E. A. ZIMMERMAN	57s
Angiotensin II in human cerebrospinal fluid may be an immunoassay artifact. P. F. SEMPLE, W. A. MACRAE and J. J. MORTON	61s

Adrenal angiotensin II receptors and vascular reactivity to angiotensin II in the rat during continuous inhibition of angiotensin converting enzyme. J. A. MILLAR, D. J. CASLEY and C. I. JOHNSTON	65s
Converting enzyme inhibition during chronic angiotensin II infusion in rats: evidence against a non-angiotensin mechanism. S. C. TEXTOR, H. R. BRUNNER and H. GAVRAS	71s
Angiotensin II and not sodium status is the major determinant of the agonistic/antagonistic balance of saralasin's actions. R. FAGARD, A. AMERY and P. LIJNEN	75s
Hypotensive effects of captopril, saralasin and bromocriptine in spontaneously hypertensive rats. J. S. HUTCHINSON and A. E. DOYLE	79s
Captopril affects blood pressure equally in renovascular and essential hypertension and in the fluid-depleted anephric state. J. H. B. DE BRUYN, G. J. WENTING, A. J. MAN IN 'T VELD, F. H. M. DERKX and M. A. D. H. SCHALEKAMP	83s
Long-term regulation of arterial pressure, glomerular filtration and renal sodium reabsorption by angiotensin II in dogs. J. E. HALL, A. C. GUYTON, M. J. SMITH and T. G. COLEMAN	87s
Effects of β -lipotropin on aldosterone production in rats. H. MATSUOKA, P. J. MULROW, R. FRANCO-SAENZ and C. H. LI	91s
The renin-angiotensin-aldosterone system in the maintenance of blood pressure, aldosterone secretion and sodium balance in normotensive subjects. G. A. MACGREGOR, N. D. MARKANDU, J. E. ROULSTON, J. C. JONES and J. J. MORTON	95s
Dopaminergic control of aldosterone secretion is independent of the renin-angiotensin system in rats. J. R. SOWERS, M. L. TUCK, J. BARRETT, M. P. SAMBHI and M. S. GOLUB	101s
II. Prostaglandin and kallikrein-kinin systems	
State of the Art Review: Interactions of prostaglandins with the kallikrein-kinin and renin-angiotensin systems. J. C. MCGIFF	105s
Intrarenal conversion of prostaglandin $F_{2\alpha}$ into prostaglandin E_2 and renin release in the isolated perfused rat kidney. U. SCHWERTSCHLAG, H. W. SEYBERTH, H. MÜLLER, R. GRUNEWALD, T. ERLENMAIER, H. G. ROHS and E. HACKENTHAL	117s
Diminished urinary prostacyclin metabolite in essential hypertension. J. H. GROSE, M. LEBEL and F. M. GBEASSOR	121s
Circulating prostacyclin concentrations may be increased by bendrofluazide in patients with essential hypertension. J. WEBSTER, C. T. DOLLERY and C. N. HENSBY	125s
Altered blood pressure and renin responses to converting enzyme inhibition after aprotinin-induced kallikrein-kinin-system blockade. A. OVERLACK, K. O. STUMPE, M. KÜHNERT and I. HECK	129s
Increase in prostaglandins during converting enzyme inhibition. S. L. SWARTZ, G. H. WILLIAMS, N. K. HOLLENBERG, F. R. CRANTZ, L. LEVINE, T. J. MOORE and R. G. DLUHY	133s
Effects of prostaglandins on renin substrate production by the liver. EIJI MURAKAMI, K. HIWADA and TATSUO KOKUBU	137s

Role of prostaglandin in the antihypertensive mechanism of catopril in low renin hypertension. K. ABE, T. ITO, M. SATO, T. HARUYAMA, K. SATO, K. OMATA, M. HIWATARI, Y. SAKURAI, Y. IMAI and K. YOSHINAGA	141s
Inhibition by bradykinin of the vascular effects of pressure hormones in the canine kidney: relationship to prostaglandins. H. SUŠIĆ, A. NASJLETTI and K. U. MALIK	145s
III. Sodium	
Influence of sodium on experimental renovascular hypertension in rats. C. M. TAQUINI, A. GALLO, N. BASSO and A. C. TAQUINI	149s
Blood volume and interstitial fluid pressure in the development and reversal of renal hypertension in rats. N. C. TRIPPODO and L. P. ZIEGLER	153s
Effects of salt restriction and high potassium intake on pressor hormones, response to noradrenaline and baroreceptor function in man. F. SKRABAL, J. AUBÖCK, H. HÖRTNAGL and H. BRAUNSTEINER	157s
Effect of inheritance and stress on the diurnal excretion of sodium and potassium in young people with and without a family history of hypertension. P. S. PARFREY, P. WRIGHT and J. M. LEDINGHAM	161s
Haemodynamics of renoprival hypertension in man: studies during graded fluid withdrawal. A. J. MAN IN 'T VELD and M. A. D. H. SCHALEKAMP	165s
Altered cardiac β -adrenoreceptors in spontaneously hypertensive rats receiving salt excess. A. A. MACPHEE, H. L. BLAKESLEY, KAREN A. GRACI, E. D. FROHLICH and F. E. COLE	169s
Enhanced sympathetic activity caused by salt loading in spontaneously hypertensive rats. R. DIETZ, A. SCHÖMIG, W. RASCHER, R. STRASSER and W. KÜBLER	171s
Effects of variations in sodium intake on the acute vasodepressor response to kininase II inhibition in rats with mild two-kidney, one-clip hypertension. T. KUSHIRO, T. C. LEE, J. P. GIROLAMI, J. P. GASSIA and M. H. MAXWELL	175s
Vascular sodium-potassium pump activity in various models of experimental hypertension. M. B. PAMNANI, D. L. CLOUGH, S. J. HUOT and F. J. HADDY	179s
Sodium-potassium-dependent ATPase activity in erythrocyte ghosts of patients with primary and secondary hypertension. G. WAMBACH, A. HELBER, G. BÖNNER, W. HUMMERICH, A. KONRADS and W. KAUFMANN	183s
Studies on the role of sodium-potassium-activated ATPase as determinant of vascular reactivity in Wistar-Kyoto and spontaneously hypertensive rats. G. GÖTHBERG, B. JANDHYALA and B. FOLKOW	187s
An inherited sodium ion-potassium ion cotransport defect in essential hypertension. R. P. GARAY, G. DAGHER and P. MEYER	191s
Erythrocyte ^{22}Na efflux and urinary sodium excretion in essential hypertension. W. R. FITZGIBBON, T. O. MORGAN and J. B. MYERS	195s
Leucocyte electrolytes and sodium efflux rate constants in the hypertension of pre-eclampsia. T. E. FORRESTER and G. A. O. ALLEYNE	199s
Effect of sodium-potassium-dependent ATPase inhibition on noradrenaline-activated calcium sensitivity of mesenteric resistance vessels in adult spontaneously hypertensive rats. M. J. MULVANY, N. NYBORG and H. NILSSON	203s

Calcium accumulation and calcium binding by the cell membranes of cardiomyocytes and smooth muscle of aorta in spontaneously hypertensive rats. S. N. ORLOV and Y. V. POSTNOV	207s
IV. Nervous system and catecholamines	
State of the Art Review: Pre- and post-junctional adrenergic mechanisms and hypertension. P. M. VANHOUTTE, R. C. WEBB and M. G. COLLIS	211s
Presence of postsynaptic α_2 -adrenoreceptors of predominantly extrasynaptic location in the vascular smooth muscle of the dog hind limb. S. Z. LANGER, R. MASSINGHAM and N. B. SHEPPERSON	225s
Dissociation between central and peripheral noradrenergic activity in essential hypertension. C. R. LAKE, R. J. POLINSKY, H.-G. GÜLLNER, M. H. EBERT, M. G. ZIEGLER, F. C. BARTTER and I. J. KOPIN	229s
Increased pressor responsiveness to enkephalin in spontaneously hypertensive rats: the role of vasopressin. R. W. ROCKHOLD, J. T. CROFTON and L. SHARE	235s
Increased adrenaline, β -adrenoreceptor stimulation and phospholipid methylation in pineal gland of spontaneously hypertensive rats. J. M. SAAVEDRA	239s
Early changes in noradrenaline content of some brain nuclei in spontaneously hypertensive rats. KIM H. LE QUAN-BUI, JEAN-LUC ELGHOZI, MARIE-AUDE DEVYNCK and P. MEYER	243s
Cyclic AMP generation in hypothalamus of hypertension-prone and -resistant rats. I. KOBRIN, R. EBSTEIN and D. BEN-ISHAY	247s
Systemic and regional haemodynamics in anterior hypothalamic hypertension in spontaneously hypertensive and Wistar-Kyoto rats. D. H. SUAREZ, BARBARA L. PEGRAM and E. D. FROHLICH	251s
Characterization of the sympatho-facilitative area postrema pathway. KAREN L. BARNES and C. M. FERRARIO	255s
Evidence for the participation of sodium-sensitive pontine catecholaminergic neurons in the maintenance of DOCA-sodium hypertension in rats. J. DE CHAMPLAIN and MARIE-REINE VAN AMERINGEN	259s
Genetic influence on brain catecholamines: high brain noradrenaline in salt-sensitive rats. JUNICHI IWAI, R. FRIEDMAN and LORRAINE TASSINARI	263s
The role of endogenous opiates in the area postrema pressor pathway. JULIANNA E. SZILAGYI and C. M. FERRARIO	267s
A hierarchical organization of blood pressure during natural behaviour in rat and the effects of central catecholamine neurons thereon. J. E. LEDOUX, L. W. TUCKER, A. DEL BO, G. HARSHFIELD, LORI GREEN, W. T. TALMAN and D. J. REIS	271s
Central and regional normetadrenaline in evaluation of neurogenic aspects of hypertension: aid to diagnosis of phaeochromocytoma. V. DEQUATTRO, P. SULLIVAN, A. FOTI, J. BORNHEIMER, SARA SCHOENTGEN, GILDA VERSALES, D. LEVINE and K. KOBAYASHI	275s
Influence of the sympathetic nervous system on aortic compliance. C. L. ALICANDRI, R. FARIELLO, E. AGABITI-ROSEI, G. ROMANELLI and G. MUIESAN	279s

Increased sympathetic activity and blood pressure in young asymptomatic men with 'organic' T-wave aberrations in the electrocardiogram. J.-H. ATTERHÖG, K. ELIASSON and P. HJEMDAHL	283s
Angiotensin activates sympathetic reflexes in the anaesthetized cat. D. P. CLOUGH, R. HATTON, J. CONWAY and S. A. ADIGUN	287s
Stimulation of peripheral dopamine receptors in rats: a mechanism for novel anti-hypertensive agents. FRANÇOISE LEFÈVRE-BORG and ICILIO CAVERO	291s
Is substance P the transmitter at the first synapse of the baroreceptor reflex in rats and cats? G. HAEUSLER and R. OSTERWALDER	295s
Blood pressure and heart rate responses to centrally administered substance P are increased in spontaneously hypertensive rats. T. UNGER, R. W. ROCKHOLD, T. YUKIMURA, R. RETTIG and D. GANTEN	299s
Pseudohypertension in sinoaortic-denervated rats. R. A. NORMAN JR, T. G. COLEMAN and ANN C. DENT	303s
Pathophysiological changes associated with stress-induced hypertension in the borderline hypertensive rat. J. E. LAWLER, G. F. BARKER, J. W. HUBBARD and R. G. SCHaub	307s
Determination of noradrenaline uptake, spillover to plasma and plasma concentration in patients with essential hypertension. M. ESLER, G. JACKMAN, P. LEONARD, A. BOBIK, HELEN SKEWS, G. JENNINGS, DIANNE KELLEHER and P. KORNER	311s
Plasma catecholamine levels and vascular response in deoxycorticosterone acetate. W. RASCHER, R. DIETZ, A. SCHÖMIG, J. WEBER and F. GROSS	315s
Plasma catecholamines and plasma renin activity at birth and during the first day of life. G. LEONETTI, C. BIANCHINI, G. B. PICOTTI, A. CESURA, LETIZIA CACCAMO and A. MARINI	319s
Reno-renal and reno-adrenal reflexes in the rat. G. RECORDATI, S. GENOVESI, D. CERATI and R. DI CINTIO	323s
V. Blood vessel wall	
Rapid onset of vascular wall protein synthesis with increase in lability of blood pressure in rabbits. A. G. MACLEAN, R. D. BEVAN, W. R. HUME, R. W. RANSOM and J. A. BEVAN	327s
Is arterial media hypertrophy in spontaneously hypertensive rats a consequence of or a cause for hypertension? K. J. HENRICH, TH. UNGER, K. H. BERECEK and D. GANTEN	331s
Hyperplasia of rat arteries smooth muscle cells associated with development and reversal of renal hypertension. G. L. RORIVE, P. J. CARLIER and J. M. FOUDART	335s
Effects of tonin on vascular smooth muscle of the hypertensive rat and normal rabbit. R. GARCIA, E. L. SCHIFFRIN, G. THIBAULT, R. BOUCHER and J. GENEST	339s
VI. Haemodynamics	
State of the Art Review: Haemodynamics in essential hypertension. P. LUND-JOHANSEN	343s
Regional blood flows in high-cardiac-output hypertension. J. F. LIARD	355s

Cardiac and haemodynamic measurements in hypertensive pregnancy. H. LARKIN, EILEEN D. M. GALLERY, S. N. HUNYOR, A. Z. GYORY and E. S. BOYCE	357s
Distensibility of the left atrial wall in spontaneously hypertensive rats compared with that in normotensive Wistar-Kyoto rats. S.-E. RICKSTEN, T. YAO, B. LJUNG and P. THORÉN	361s
Cardiac contractile reserve in spontaneously hypertensive rats. M. A. SARAGOCA and R. C. TARAZI	365s
Role of haemodynamics, catecholamines and renin in acute hypercalcaemic hypertension in man. C. MARONE, C. BERETTA-PICCOLI and P. WEIDMANN	369s
Haemodynamic effects of increasing extracellular potassium concentration in ACTH-induced hypertension in sheep. B. A. SCOGGINS, J. P. COGLIANI, D. A. DENTON, MAUREEN FITZGERALD, W. F. GRAHAM, R. T. MASON and E. G. SCHNEIDER	373s
Haemodynamics of stable renal transplant recipients. K. E. KIM, O. BATES, P. LYONS, J. PITONE, E. W. MARTINEZ, E. VALVO, P. SABANAYAGAM, R. BOWER, C. SWARTZ and G. ONESTI	377s
Impaired autoregulatory responses in contralateral kidneys of two-kidney, one-clip hypertensive rats. D. W. PLOTH, R. N. ROY, WANN-CHU HUANG and L. G. NAVARI	381s
Myocardial infarction in experimental hypertension in rats: mechanism of the reduction in blood pressure. P. J. FLETCHER, JANICE M. PFEFFER, M. A. PFEFFER and E. BRAUNWALD	385s
Central blood volume in spontaneously hypertensive rats and Wistar-Kyoto normo- tensive rats. S. LUNDIN, B. FOLKOW, P. FRIBERG and B. RIPPE	389s
Alterations in cardiac function and cardiopulmonary blood volume in chronic sodium depletion in dogs. M. P. LYNN, F. FOUDAD, S. A. COOK, CARMEN A. NAPOLI and C. M. FERRARIO	393s
Haemodynamic changes associated with obesity and high blood pressure in rats with ventromedial hypothalamic lesions. E. REISIN, D. H. SUAREZ and E. D. FROHLICH	397s

VII. Clinical aspects

Blood pressure variability in man: its relation to high blood pressure, age and baroreflex sensitivity. G. MANCIA, A. FERRARI, L. GREGORINI, G. PARATI, G. POMIDOSSI, G. BERTINIERI, G. GRASSI and A. ZANCHETTI	401s
Chronic lability of arterial pressure in the rat does not evolve into hypertension. W. T. TALMAN, D. R. ALONSO and D. J. REIS	405s
Asymptomatic mild hyperuricaemia: an indicator of nephrosclerosis in essential hypertension. F. H. MESSERLI, E. D. FROHLICH, G. R. DRESLINSKI, D. H. SUAREZ and G. G. ARISTIMUNO	409s
Abnormal left ventricular relaxation in hypertensive patients. F. M. FOUDAD, R. C. TARAZI, J. H. GALLAGHER, W. J. MACINTYRE and S. A. COOK	411s
Left/right ventricular weight ratio: an estimate of 'cardiac adaptation to hypertension'. MARGARETA HALLBÄCK-NORDLANDER	415s

Visualization of the renal arteries during excretory urography. H. INGRISCH, H. HOLZGREVE and K. W. FREY	419s
Value of combined intravenous renal arteriography and pyelography in the diagnosis of renovascular hypertension. A. FOURNIER, J. P. CECILE, A. REMOND, J. F. DE FREMONT, R. MAKDASSI, M. ANDREJAK, J. M. HARDIN and Y. GRUMBACH	423s
Total body potassium falls with age. B. RAJAGOPALAN, G. W. THOMAS, L. J. BEILIN and J. G. G. LEDINGHAM	427s
Human leucocyte antigens in patients with previous essential malignant hypertension. T. GUDBRANDSSON, H. HERLITZ, L. HANSSON and L. RYDBERG	431s
VIII. Therapeutic aspects	
Effect of therapy on left ventricular function in hypertension. I. KHATRI, J. GOTTDIENER, A. NOTARGIACOMO and E. FREIS	435s
Effect of blood pressure control on left ventricular hypertrophy in patients with essential hypertension. F. G. DUNN, B. BASTIAN, T. D. V. LAWRIE and A. R. LORIMER	441s
Hydralazine: mode of action at the neuroarterial junction. C. CHEVILLARD, B. SAIAG and M. WORCEL	445s
Disparate effects of methyldopa and clonidine on cardiac mass and haemodynamics in rats. SHOZO ISHISE, BARBARA L. PEGRAM and E. D. FROHLICH	449s
β -Adrenoreceptor-blocking agents and the blood-brain barrier. J. M. CRUICKSHANK, G. NEIL-DWYER, M. M. CAMERON and J. MCAINSH	453s
Effect of β -receptor-blocking agents on cardiovascular structural changes in spontaneous and noradrenaline-induced hypertension in rats. YUKIO YAMORI, R. C. TARAZI and AKIRA OOSHIMA	457s
Dose-response curve and time course of the antihypertensive effect of SKF 92 657, a β -receptor-blocking and vasodilating compound. G. LEONETTI, LAURA TERZOLI, CARLA SALA, C. BIANCHINI and A. ZANCHETTI	461s
A comparison of the acute haemodynamic effects of propranolol and pindolol at rest and during supine exercise in man. T. L. SVENDSEN, J. E. CARLSEN, O. HARTLING, A. MCNAIR and J. TRAP-JENSEN	465s
Metoprolol in diabetes mellitus: effect on glucose homeostasis. B. N. GARRETT, P. RASKIN and N. M. KAPLAN	469s
Effect of atenolol on left ventricular function in hypertensive patients. M. M. IBRAHIM, M. A. MADKOUR and R. MOSSALLAM	473s
Renal blood flow and noradrenaline secretion during treatment with propranolol. P. W. DE LEEUW, R. PUNT and W. H. BIRKENHÄGER	477s
α - and β -adrenoreceptor-mediated control of brain noradrenaline neurons and anti-hypertensive therapy. T. H. SVENSSON, O. ALMGREN, C. DAHLÖF, M. ELAM, G. ENGBERG, H. HALLBERG and P. THORÉN	479s
Transluminal balloon dilatation of renal artery stenosis causing hypertension: 18 months' experience. H. Y. YUNE, E. C. KLATTE, C. E. GRIM and M. H. WEINBERGER	483s
Nomenclature of hypertensive rat strains.	487s

IX. End of Meeting

Address on the occasion of the Official Dinner at the Seventh Meeting of the International Society of Hypertension by the President	489s
Last letter from the President. ALBERTO ZANCHETTI	491s
Author Index	495s

These Proceedings of the Seventh Meeting of the International Society of Hypertension are once more being published as a special Supplement to *Clinical Science*. Editorial work has been carried out by a panel consisting of Hans Brunner, Robert Fraser, Charles George, Frank Goodwin, John Reid, Ian Robertson and Maarten Schalekamp. The appearance of this publication so soon after the meeting is due in part to the friendly cooperation of the authors and in large measure to the energy and hard work of the subeditors in the Editorial Office of the Biochemical Society under Tony Evans. A major contribution was also made by the *Clinical Science* secretary Sarah Spencer Smith and my secretary Anne Taylor. Particular thanks are due to Merck Sharp and Dohme, who have supported the Supplement financially.

JOHN SWALES