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STRUCTURAL BIOLOGY

MAP KINASE MEDIATED ACTIVATION OF NHE1 BY LYSOPHOSPHATIDIC ACID AND PHENYLEPHRINE.

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The sodium hydrogen exchanger 1 (NHE1) is important in maintenance of intracellular pH (pH_i) and is highly regulated by growth factors, hormones and extracellular matrix proteins. Alteration in the regulation of NHE1 is suspected to play a role in several diseases including neoplastic transformation, hypertension and ischemia. Protein kinases have long been thought to be involved in the activation of NHE1. In both smooth muscles and cardiac cells, PKC is an important component of NHE1 regulation. In other proliferative cells, growth factors are thought to regulate NHE1 activity through two protein kinases mitogen activated protein kinase (MAPK) and ribosomal S6 Kinase. It is likely that there is a convergence of G protein coupled receptor signaling to NHE via MAPK.

Two different G-protein linked receptor agonists, lysophosphatidic acid (LPA) or phenylephrine (PE), lead to a rise in the steady-state pH_i. LPA induced an alkaline shift in pH_i-dependence of 0.15 to 0.20 pH units. To determine the possible upstream effectors of NHE1, the activation of several potential signaling molecules were investigated. LPA stimulation lead to an increase in the phosphorylation of the epidermal growth factor receptor. Both PE and LPA increased phospholipase D activity nearly three fold over basal levels. An increase in the phosphorylation state of MAPK was observed for both LPA and PE stimulation. The MAPK response was greater for LPA than for PE, indicating a difference in activation mechanism. Addition of PMA lead to a robust activation of PLD, MAPK and NHE activity. Whereas both PKC inhibitors, staurosporine and Ro-318220 inhibited PE stimulated MAPK activity. These data indicate that both G-protein coupled agonists activate NHE1 through pathways that converge at MAPK.

MOLECULAR MODELING OF THE BACTERIAL PYROGENIC TOXIN SUPERANTIGEN (PTSAG) FAMILY

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Particular strains of the bacteria *Staphylococcus aureus* and *Streptococcus pyogenes* produce a family of exotoxins collectively referred to as the pyrogenic toxin superantigens (PTSAGs) for their ability to induce fever, overstimulate T lymphocytes, and enhance the lethality of endotoxins in infected individuals. Members of the PTSAG family include staphylococcal enterotoxins A-J (minus F), streptococcal scarlet fever toxins A-L (minus B), and toxic shock syndrome toxin-1. Three dimensional structural studies have demonstrated that the PTSAGs have a conserved two domain fold that may have appeared as the result of a gene recombination event among a small subset of immune system modulating agents these bacteria produce. PTSAGs exert their biological effects by positioning themselves as a bivalent bridge between class II major histocompatibility and T cell receptor molecules and triggering the overstimulation of the immune system. Molecular modeling of the PTSAGs has identified some of the structural characteristics that distinguish subsets within this family and the possible biological function of key surfaces. This project has also been a mechanism to illustrate the relationship between protein structure and function in biology.

HOW WATERMELON SEEDS SPIT OUT MALATE DEHYDROGENASE

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Proteins encoded in the nuclei of eukaryotic cells are utilized at various locations throughout the cell (i.e. cytoplasm, cell membranes, and a variety of organelles). One mechanism that is used to target proteins to organelles is an amino terminal pre-sequence. These pre-sequences are transcribed adjacent to the protein sequence and are translated in the cytosol. They result in a protein that is different from the form eventually isolated within the organelle. These translocatable proteins contain anywhere from 20 to 40 or more additional residues at the amino terminal end. The structure of these cleavable "precursor" proteins prior to translocation is still somewhat unclear. There is also uncertainty about the significance of the translocation sequences for identifying different organelles (e.g. mitochondria, vs chloroplasts vs glyoxysomes etc.) Nevertheless upon biosynthesis, these "precursor" proteins are translocated and during or after import the pre-sequence is proteolytically removed. The mature or organelle form of the protein is biologically active and missing the translocation segment. We have determined the crystal structures of precursor glyoxysomal malate dehydrogenase and its proteolytically cleaved mature form from watermelon, both to a resolution of 2.5 angstroms. A brief structural comparison of the two structures will be presented to help understand how these pre-sequences function in the import mechanism of glyoxysomes. (Supported by a grant from the NSF - MCB 9603656)

RNA CHAPERONE ACTIVITY OF THE HIV-1 NUCLEOCAPSID PROTEIN

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An initial and key step in HIV-1 reverse transcription involves hybridization of one strand of the acceptor stem of a specific host cell tRNA (human tRNA^{Lys3}) to the primer binding site on the RNA genome. The HIV nucleocapsid protein (NC) greatly accelerates primer/template binary complex formation in vitro. We are investigating the mechanism of NC's RNA chaperone activity, specifically as related to tRNA primer annealing. Our previous fluorescence resonance energy transfer (FRET) studies showed that the tRNA acceptor stem is not substantially unwound by NC in the absence of the RNA genome, that is, unwinding is not separable from hybridization (B. Chan, et al (1999) Proc. Natl. Acad. Sci. USA 96, 459-464). Since the FRET experiments are not sensitive to more subtle tRNA conformational changes that may be induced upon NC binding, we have developed a novel metal cleavage assay to probe this question further. We show that terbium (Tb³⁺) is a sensitive probe of tRNA folding, and that NC binding initially disrupts the D-loop/TYC-loop interaction at the corner of the L-shaped structure. At higher concentrations of NC, the tRNA backbone is significantly more accessible to Tb³⁺ than in the absence of NC, and cleavage is increased throughout most of the tRNA structure. Thus, NC binding induces a relatively uniform "loosening" of the tRNA to a conformation that may resemble the secondary cloverleaf structure more closely than the L-shaped tertiary conformation. A mutant form of NC that has both of its CCHC zinc-binding motifs mutated to SSHS is expected to be severely defective in binding zinc. Nevertheless, this mutant anneals tRNA to the PBS at a rate that is significantly increased relative to wild-type NC. Thus, zinc coordination by NC is not a prerequisite for tRNA primer annealing.

DIRECT VISUALIZATION OF THE CALMODULIN SUBUNIT OF PHOSPHORYLASE *b* KINASE VIA SUBUNIT EXCHANGE AND ELECTRON MICROSCOPY

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Calmodulin is a tightly bound, intrinsic subunit (d) of the hexadecameric phosphorylase-*b* kinase holoenzyme, (abgd)₄. The exchange of exogenous calmodulin for the intrinsic d subunit has been observed in the past [Picton, C., Klee, C. B. and Cohen, P. (1980) *Eur. J. Biochem.* 111, 553-561], but at a rate of only 15% per week. To accelerate and optimize this exchange in order to introduce derivatized molecules of calmodulin into the phosphorylase-*b* kinase holoenzyme, we have exploited previous findings demonstrating that incubation of the enzyme with low concentrations of urea in the absence of Ca²⁺ ions causes the specific dissociation of only the d subunit [Paudel, H. K. and Carlson, G. M. (1990) *Biochem. J.* 268, 393-399]. In this study, we have incubated phosphorylase-*b* kinase with excess exogenous calmodulin and a threshold concentration of urea to promote exchange of calmodulin for the d subunit. Size exclusion-HPLC was used to remove the excess calmodulin from the enzyme. The chromatography also resolved the phosphorylase-*b* kinase into two distinct peaks. Transmission electron microscopy revealed that the more massive of the two is composed of clusters of molecules, while the less massive species contains individual, hexadecameric phosphorylase-*b* kinase molecules. Using metabolically labeled [³⁵S]calmodulin to allow quantification, we were able to measure exchange of approximately 10% of all d subunits within 1 hour. Calmodulins that were derivatized with Nanogold™ were exchanged under the conditions described above. Freeze dried grids of the exchanged, purified enzyme were prepared and visualized by scanning transmission microscopy. These images allow the placement of the d subunit within the holoenzyme.

PROBING THE LIGAND BINDING SPECIFICITY OF PROTEIN DISULFIDE ISOMERASE

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Protein disulfide isomerase (PDI) catalyzes the folding of a diverse group of proteins during their synthesis in the rough endoplasmic reticulum of eukaryotic cells. PDI assists in the folding of proteins by allowing the oxidation, reduction, and isomerization of disulfide bridges during protein folding. Two thioredoxin-like active sites participate in the isomerase function of this redox chaperone. In addition, PDI is a subunit of two enzymes (prolyl-4-hydroxylase (P4H) and microsomal triglyceride transfer protein (MTP)) involved in co- and post-translational modification and assembly in the cell. We have identified a peptide binding site on PDI which functions in PDI-assisted folding, P4H, and MTP activity. Using site-directed mutagenesis and truncation mutation, we have demonstrated both the thioredoxin-like active sites and the peptide binding site participate in PDI function. Because of the wide range of activities of this multifunctional protein, we have also investigated the ligand binding specificity of PDI using phage display screening. Two display phage libraries screened, each expressing a minor recombinant coat protein (pIII) engineered to display random heptapeptides or dodecapeptides. No preference for ligand binding of hydrophobic vs. hydrophilic peptides was noted. However, significant positional preferences for amino acids were identified. A motif including consecutive hydroxyamino acids was also noted. Finally, a preference for proline was also noted. This preference for ligand containing Proline may indicate the enzyme's role in P4H function or suggest Proline affects the conformation for pIII peptide presentation.

BUSINESS AND ECONOMICS

MANAGERS' CORRECTIVE RESPONSES TO OPERATIONAL VARIANCES

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Variance analysis, investigation, and correction are important operational control processes in modern organizations. Recent empirical accounting studies addressing variance investigation and the related topic of performance evaluation suggest that managers' subsequent corrective responses to operational variances are significantly influenced by their initial judgments as to variance causality. To conceptualize managers' causal judgment processes, studies have relied on attribution theory, a cognitive theory of perceived causality, while also utilizing the Green and Mitchell [1979] attribution/behavior model. The Green and Mitchell [1979] model, as adapted to variance investigation contexts, presents a two-stage process in which managers observing an operations variance first attempt to diagnose the cause of the variance and their initial causal attributions or judgments are then combined with organization norms and policies to produce appropriate corrective responses. Following their initial attributions of variance causality, one subsequent corrective response to which lower and middle managers in large organizations typically are limited is submission of some form of internal disclosure report to higher management who possess authority to take more stringent corrective action. Often such disclosure reports amount to a performance evaluation of the employee directly responsible for the variance in which the lower or middle manager argues that the variance was caused by either: 1) personal shortcomings of the employee, or 2) situational problems beyond the employee's control. Accordingly, a manager who attributed a variance to more personal factors on the part of the responsible employee, such as lack of ability or effort, would subsequently be expected to cite and emphasize negative past performance facts about the employee to justify the initial attribution. Conversely, it is reasoned that a manager attributing the variance to more situational factors beyond the responsible employee's control, such as task difficulty or bad luck, would then disclose and underscore positive past performance facts to stress the employee's overall competence and thus deflect blame. This presentation explains the theoretical background for a follow-up study examining middle managers' variance investigation and disclosure processes.

NATIVE AMERICAN ENTREPRENEURSHIP: PSYCHOGRAPHIC CHARACTERISTICS AND SOCIOECONOMIC INHIBITORS TO BUSINESS SUCCESS

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This research provides a comparison of Minnesotan and Wisconsin Native American entrepreneurs with non-Native American entrepreneurs. The study was funded by an University of Wisconsin Research Grant and is part of ongoing research dealing with Native American entrepreneurs in the United States. This section of the research deals with demographic and psychographic data which helps develop a profile.

Additionally, the research identified the top five inhibitors to startups ranked by survey respondents. Significant variation occurred in "discrimination," "lack of education," "communication skills," and "lack of motivation" with Native American entrepreneurs as a group ranking these factors higher than the non-Native American group. Access to financial resources was found as a common barrier regardless of the ethnic background of the entrepreneur. While only an initial step in a more comprehensive study of Native American entrepreneurship, this research does reveal data which can be used in the possible preparation of programs to facilitate greater economic development and training for Native Americans.

THE ECONOMICS OF RETIREMENT INCENTIVES IN HIGHER EDUCATION

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This paper discusses the economic efficacy of Voluntary Retirement Incentives in American higher education. It includes an overview of the employer's internal labor market, a procedure for assigning Present Values to early retirements, a discussion of nonfinancial considerations, and an economic model of the decision when to retire, calibrated to contemporary wealth, age, and retirement behavior in higher education. The general finding is that retirement incentives used to facilitate faculty turnover are hard to justify financially, so must be supported by nonfinancial effects.

OPTIMUM SKILL MIX CHOICE AND MAXIMIZING JOB PERFORMANCE RANKING OCCUPATIONS USING A DEA FRAMEWORK

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This paper utilizes a data envelopment analysis (DEA) to sort and rank occupations on the basis of an objective criteria in which the "efficient" occupation obtains maximum skills for the lowest wage. A skill frontier is constructed that is comprised of those occupations that maximize the skills output and minimizes the wage input. The objective function also identifies occupations that lie below the frontier (i.e., have efficiency scores less than unity) and measures the slacks in skills or wages that are necessary to reach the projected point of efficiency on the frontier. Data for the analysis comes from a survey of Minnesota employers in which they ranked the importance of five functional skill areas.

We find a statistically significant inverse relationship between efficiency scores and wages implying that higher-wage occupations have lower PEA efficiency scores. These same results are found after grouping occupations in clusters and sorting by educational level. Occupations with greater DEA efficiency have lower wages and lower educational requirements.

One implication of these results is that employers find it easier to "hit the mark" in terms of achieving maximum skills for low wage jobs than when employing workers in high-wage jobs. These low-wage employers have no incentive to offer additional training because skills are already maximized given the wage. When demographic characteristics are added to the analysis we find that these occupations are dominated by women and blacks.

THE INFLUENCE OF FAMILY/LIFE BALANCE INITIATIVES ON WOMEN'S INTENTIONS TO LEAVE PUBLIC ACCOUNTING

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While the public accounting profession has been very successful in recruiting highly talented women, the profession has not been able to retain these women in numbers comparable to men. Women comprise over 50% of new staff but only 8% of the partners in large firms. Prior research has shown that there is no substantial evidence of gender differences in behavioral traits, work ethic, education and experience or career objectives. In an effort to improve the retention and subsequent promotion of women, public accounting firms have implemented a number of initiatives, for example, mentor programs and innovative scheduling. While research documenting the existence of these programs has been conducted, there is very little research investigating whether these programs are effective in retaining women in public accounting. The primary source of available information is anecdotal data obtained in exit interviews. The purpose of this paper is to evaluate the influence of selected family/life balance initiatives by public accounting firms on

women's intentions to leave "big five" accounting firms. A questionnaire will be used to obtain data from the accounting professionals in these firms.

PHYSICIANS' SELF INSURANCE BEHAVIOR

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In a time when state legislated required insurance programs are the norm and not the exception, it is surprising to learn that medical malpractice insurance is not required in the majority of states. Although not a problem in the past due primarily to inexpensive premiums and rare legal actions, today's environment has produced a growing propensity to litigate causing a dramatic rise in malpractice rates. In some areas of the country, physicians can respond to increasing malpractice rates by dropping conventional insurance and putting aside funds to be used in the event of an adverse malpractice judgment. This is known as self-insurance and is often referred to as "going bare" among physicians. The current paper presents a theoretical model of an individual's expected utility under conditions of both conventional and self-insurance. The model is expanded to include the more modern day problems of both uninsurable reputation loss and defensive medicine (physician's behaviors designed solely to lessen one's malpractice liability). A brief empirical section examines some recent aggregate self-insurance data from the College of Obstetricians and Gynecologists, as well as the propensity for family physicians to self-insure, according to a simple logit model.

IDENTIFYING THE EFFECTS OF MONETARY SHOCKS ON THE FARM SECTOR

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This study concerns two potential channels for the transmission of monetary policy to the farm sector in the United States. The first one is the "money" channel where a relative-price model is used to explain the effect of monetary policy shocks on relative farm prices. The second one is the "credit" channel where the Flow of Funds Accounts (FOFA) data is used to assess the effect of monetary policy shocks on net funds raised in the farm sector.

The equilibrium relative-price model provides a linkage between monetary policy shocks and relative farm prices. The model shows that monetary policy can affect relative farm prices if aggregate price information is imperfect and if supply and demand elasticities in the farm and nonfarm sectors are different. The short-run elasticity of supply of farm products is argued to be less than that of nonfarm products because of differences in the production processes. This characteristic of farm production causes relative farm prices to fall initially in response to a contractionary monetary policy shock.

The credit channel for the transmission of monetary policy is another way monetary policy can affect the farm sector. The credit view holds that monetary policy affects the borrowing and lending activities of the farm sector primarily because it affects the extent of financial intermediation.

A "semi-structural" vector autoregression (VAR) model is used to develop two VAR based policy shock measures – the federal funds rate and nonborrowed reserves. The effects of monetary policy shocks on the farm sector are then assessed using dynamic response functions obtained through the VAR model.

Relative farm prices show a steady and persistent decline after a contractionary monetary policy shock, while net funds raised in the farm sector increase for roughly a year then decline. The initial rise in the net funds raised reflects the difficulty for farmers to quickly alter their nominal expenditures. Eventually, they reduce their nominal expenditures and net funds raised decline as predicted by the credit view. (*JEL E5, Q10, C32*)

SYSTEM DYNAMICS, A MODELING METHODOLOGY FOR COMPLEX ISSUES, WITH APPLICATION FROM THE BEEF INDUSTRY

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Systems Dynamics, (SD), a computer-based simulation modeling methodology is a powerful tool for modeling complex issues. SD has been used to model systems from every conceivable discipline, from history and literature to biology, physics, and economics. Despite the growth and acceptance of SD, it is far from being well-known as a field in itself or as a contribution to the fields which it is used.

The scientific method has taught us to take apart that which we don't understand. To deal with problems by dissecting and examining the parts. This has its place, but can be inappropriate and even dangerous. If we are as interested in the connections or interactions between the parts as much as the individual parts we are interested in a system.

A fundamental tenet of SD is that all dynamic behavior is a consequence of structure. If structure can be modeled, behavior can be predicted. Solving problems with delays has always been difficult, because system problems and the symptoms of these problems are separated in time. The longer the delay between the advent of a problem and the time when the problem becomes apparent, the more difficult to solve.

A SD simulation model of the U.S. beef industry from 1985 to 2000 will be used to demonstrate the power of the methodology to deal with complex problems. This industry is appropriate because of system structure from ranch to feedlot to packer to retail levels, plus the unique production delays at the ranch-feedlot levels.

FINANCIAL CHARACTERISTICS OF FIRMS RECEIVING GOING CONCERN AUDIT REPORTS

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Statement on Auditing Standards No. 59 [AICPA, 1988], has significantly increased the auditor's responsibilities in evaluating whether there is a substantial doubt about the entity's ability to survive as a going concern. Although it is crucial that auditors make proper judgments when reaching these decisions, assessing a company's going concern status remains a complex and imprecise process. Menon and Schwartz (1987) found that only 63 out of a sample of 141 bankrupt firms had ever been issued a going concern audit report prior to bankruptcy. This study underscores the need for exploring statistical techniques such as logistic regression (Logit) that will help auditors in making decisions in a structured way.

Financial statement data for 176 companies from the COMPUSTAT database relating to going concern audit report (GCAR) and No GCAR (NGCAR) firms were used to generate the Logit model. Eleven financial ratios were used as independent variables. Logit analysis was conducted on a sample of 86 GCAR firms and 90 NGCAR firms. The Logit results indicate that the NGCAR firms were more profitable than GCAR firms. NGCAR firms had larger working capital ratios than GCAR firms. GCAR firms had larger debt to equity ratios than NGCAR firms. In other words, GCAR firms were highly leveraged. NGCAR firms were larger in size compared to GCAR firms. Finally, NGCAR firms had higher levels of retained earnings as a percentage of total assets than GCAR firms. However, the size of the sample used in this study somewhat limits the generalizability of the results

A TRADING SYSTEM USING MINI S&P FUTURES

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This paper introduces a system for trading Mini S&P Futures. The basic concept of the system is to take advantage of the increasing volatility in the stock market by buying more contracts as the price drops and selling these contracts for small, but frequent, gains. Both buy and sell prices and the number of contracts purchased and sold are determined

before the system is started, and do not change until realized gains allow for more aggressive parameters. The market price must come to these pre-determined buy and sell prices for a transaction to take place. The system relies on limit orders so that the user does not have to continually monitor prices. Some contracts will be held for hours and other contracts for months. The pre-determined buy prices and the number of contracts purchased are designed to insure that adequate capital is available to continue purchasing futures as the price falls. This paper: 1. Explains the mechanics of how the system works. 2. Analyzes profit potential by applying the system to a sample of historical price movements, and calculates minimum capital required. 3. Provides recommendations for risk control. 4. Explains the psychological advantages of the system.

ECONOMIC IMPACT OF NON-PROFIT, CHARITABLE AGENCIES: THE UNITED WAY

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Non-profit charitable institutions redistribute income. As such, their net economic impact on the community might be evaluated at zero: the economic gains of one group just offset by the losses of another. Certainly the conventional methods used to evaluate the economic impact of sports facilities, public building projects, or other types of physical economic activity, which focus on the flow of resources, would place the impact of redistribution at zero. Yet we know intuitively that institutions like the United Way and other charitable endeavors add something to our communities. We strongly suspect that our lives are better because they exist. This paper attempts to measure the economic impact of a non-profit, charitable institution, using the United Way of the St. Cloud Area as a case study. The focus of the paper is on the methodology of measuring economic impact rather than the details of this particular case

A FOREIGN MADE PRODUCT: MADE IN THE U.S.A.

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American products need to be able to compete in world markets. There is stiff international competition on all fronts. The Japanese know that there are about six times more potential buyers in the (old) Soviet bloc nations and China than there are in the United States.

An emerging "new Europe" which is committed to metric measurement will have an enormous economic impact on international trade. The European Community (EC) is no longer a great place for inch-pound goods! Everyone is attempting to harmonize standards, product labels, patents, trademarks, sizes, licenses, etc.

Our refusal to provide products built to the worldwide standards which other nations prefer continues to undermine our competitive position internationally. Our long-standing dominance of many product markets has allowed us to dictate our measurement standards for years. Time is running out. Europe, China and underdeveloped countries will grow more than the U.S. International trade will be a market driven business. There are currently more than 20,000,000 small companies driven by demographics. It is estimated that about 30% will be in international trade.

Americans don't realize what loss of world market share is doing to our standard of living. According to the U.S. Department of Commerce, "reluctance to join other nations in using the metric system costs the U.S. billions yearly." World consumers want to be able to purchase nuts and bolts at their local hardware store when pieces need to be replaced on U.S. made products. They do not want to wait some time for "foreign made" parts to be shipped from U.S. manufacturers.

**MACROMARKETING AS A SUB-DISCIPLINE OF MARKETING:
TRACING ITS DEVELOPMENT**

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Mittelstaedt (1990) traced the development of consumer behavior as a sub-field of marketing by looking at the developments in its content area. Savitt (1990) employed a Kuhnian framework to trace the development of macromarketing from the 1920s to the period before Alderson. This paper attempts to trace the development of macromarketing as a sub-discipline of marketing from a sociology of science perspective. Ziman (1984), and Mullins (1973) describe a pattern by which a sub-discipline may develop as a specialty in its own right. This paper will apply the models developed by Ziman (1984) and Mullins (1973) to trace the development of macromarketing. Mullins' (1973) model studies the communication and social structures that develop as a field of study matures. Ziman (1984) describes a pattern for the institutionalization of an academic specialty. In section 1, this paper will discuss the two models. Section 2 of the paper will apply the two models to the development of macromarketing as a sub-discipline of marketing. Section 3 analyses data on trends in co-authorship in writings in the area of macromarketing, and section 4 will conclude the paper.

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PROFESSIONAL POSTER

**RAT SPLENCYTE AND THYMOCYTE PROPERTIES IN
REGENERATION AND WOUND REPAIR**

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Inflammatory and immunological responses affect fibroplasia and fibrosis in adult and fetal mammalian wound repair as well as regeneration of amphibian limbs by means that are poorly understood. We studied proliferation, mitogen responsiveness, and activation in coculture of splenocytes and thymocytes from adult male Fischer rats challenged by polyvinyl alcohol sponge wounds or a mammalian regenerating skeletal muscle model. At three days postinjury, thymocyte proliferation (^3H -thymidine uptake) was enhanced, relative to controls, 2.5-fold in both models; however, splenocyte proliferation was enhanced more in rats undergoing repair than regeneration (2.5-fold vs 1.7-fold). Stimulation of splenocytes by lipopolysaccharide (LPS, a B-cell mitogen) or concanavalin A (ConA, a T-cell mitogen) was abolished three days postinjury, in both models. In contrast, thymocytes from rats undergoing wound repair became insensitive to LPS and were markedly less responsive to ConA whereas thymocytes from rats undergoing regeneration retained a substantially attenuated responsiveness to both mitogens. Proliferation of thymocytes and splenocytes from normal rats was stimulated by coculture with myoblasts (1.8- and 1.5-fold, respectively) but not fibroblasts (stimulation index = 1.0). At three days postinjury, thymocytes responded similarly to challenge by fibroblasts or myoblasts. However, splenocytes were stimulated by fibroblasts regardless of the injury (stimulation indices of 1.2- to 1.3-fold vs 1.0 for controls) whereas those from rats undergoing wound healing, but not regeneration, lost their responsiveness to myoblasts (1.5-fold stimulation to 1.0). These data suggest that properties of splenocytes and thymocytes from rats undergoing fibrotic wound repair differ from those of rats undergoing reparative regeneration. [Supported by NIH grant GM-50882]