Nanotechnology: Manufacturing as Extended Chemistry
Dr. Ralph C. Merkle

Abstract
Manufactured products are made from atoms. The properties of these products depend on how those atoms are arranged. If we rearrange the atoms in coal we can make diamond. If we rearrange the atoms in sand (and add a few trace elements) we can make computer chips.

Today’s manufacturing methods are very crude at the molecular level. Casting, grinding, milling and even lithography move atoms in great thundering statistical herds. It’s like trying to make things out of LEGO blocks with boxing gloves on your hands. Yes, you can push the LEGO blocks into great heaps and pile them up, but you can’t really snap them together the way you would like.

Nanotechnology promises to let us inexpensively arrange atoms in most of the ways permitted by physical law, getting essentially every atom in the right place. An effective method of achieving low cost is to use self-replication. Nature shows this is possible: wood is inexpensive despite the fact it is made of untold billions of complex molecular machines because a tree can make more trees. We could do likewise, making molecular manufacturing systems able to make more molecular manufacturing systems — producing inexpensive products available to all. This talk will explore the fundamental principles underlying replicating systems and examine the proposals that have been advanced so far, as well as the vast differences between proposed artificial systems and the remarkably adaptable and error tolerant biological systems that have served as “proof of principal.”

For further information on nanotechnology read Dr. Merkle’s latest article in the January 2001 issue of IEEE Spectrum or visit www.zyvex.com/nano

Chair’s Message

17,824 participants registered for the 221st annual American Chemical Society meeting in San Diego! This was the third largest meeting ever, after the recent Boston and San Francisco meetings. In addition to the record number of attendees, there were a record number of papers presented, posters to view and events to attend. This year the out-of-state visitors were less concerned about earthquakes than they were concerned about power! In one hotel where I attended sessions, the chairman was provided a sheet of instructions for emergency power outage purposes and a flashlight; neither was needed! Two innovations begun by the Society, that probably had their roots in Silicon Valley, were unveiled at this meeting. For the first time there was a Virtual Expo on the ACS web site that preceded the typical vast exhibition in the convention center. This new feature gave the exhibitors exposure from national’s web site, earned the meeting some money, and will be enhanced for the Chicago and future meetings. The single most-welcome innovation in San Diego was the LCD projectors. Projectors (but not laptops) were provided for each meeting room for a rental cost to the society of $65,000. This audio-visual tool began as an experiment, but will continue for the future meetings. The social and cultural side of the meeting was treated to a premiere performance of Carl Djerassi’s play, “Oxygen.”
Biography

Dr. Merkle received his Ph.D. from Stanford University in 1979 where he co-invented public key cryptography. He joined Xerox PARC in 1988, where he pursued research in computational nanotechnology until 1999. He is now a Principal Fellow at Zyvex, where he continues to pursue research in nanotechnology. He chaired the Fourth and Fifth Foresight Conferences on Nanotechnology, is on the Executive Editorial Board of the journal Nanotechnology, was co-recipient of the 1998 Feynman Prize for Nanotechnology, was co-recipient of the ACM’s Kanellakis Award for Theory and Practice, the 2000 RSA of the ACM’s Kanellakis Award for theory, and was co-recipient of the IEEE Kobayashi Award. Dr. Merkle has published and spoken extensively and has eight patents. His home page is at www.merkle.com.

Nominations for 2002 Petition Candidates

Petition candidates can be nominated by the membership.

Offices are: Chair-Elect
Secretary
Treasurer
Councilor
Alternate Councilor

The requirements are:
• Member (Grade) of SCV Section.
• Agreement to run for the office.
• Agreement to attend Executive Committee meetings.
• Signatures of 15 Members (Member Grade) of the SCV Section.
• Petitions along with a brief biography and statement must be received by August 1, 2001

Mail nominations to:
Dr. Karl Marbenke
1710 Wilsbire Drive
Aptos, CA 95003-2836

Members of the audience that I talked with gave the play “two thumbs up” as a review.

In San Diego our section in partnership with the California section won a new hospitality award. LSAC, Local Section Activities Committee, presented awards to the top three sections that hosted a tour speaker in 2000. Dr. Nagyvary, our September speaker, felt our arrangements for his talk were extraordinary, so he wrote a letter nominating us for the award.

The California section hosted a memorable luncheon to celebrate their 100th anniversary as an ACS local section. After Marinda Wu, their chair for this centennial year, gave a presentation on the statewide section’s early history, each “spun off” section presented a brief history of their area. Those of us in fast paced Silicon Valley are not the only ones who do not like to drive to meetings. Early East Bay members took the ferry across the bay to meetings, which doubled as ‘smokers’ because only men attended. Until 1984 members from Fresno drove to Berkeley for meetings! The first national meeting in San Francisco was in 1910. Dr. Ralph Gould from the USDA in the East Bay organized the entire event, including the entertainment! It now takes an army of people to organize a national meeting! The San Joaquin section was formed during those long car trips! We laugh now at the number of pictures that are taken at any function, but I hope this continues for historical purposes, because the California section has some marvelous old pictures of men in starched white collars and women in long skirts! Shirley Radding, our official representative, presented a lively talk about our section.

Now is the time to submit abstracts and posters. Go to their website for more information.
http://www.2001werm.org/

The next Executive Committee Meeting is late in May on Wednesday, the 16th in Santa Clara. This is a perfect time to meet the committee and experience your local section’s officers at work! Contact me for directions.

Chemistry Olympiad

The first section of the Santa Clara Valley Chemistry Olympiad was held on March 25th, 2001. There was an exceptional turnout and everyone had a great time! Seventy-four students took the 60 question, 100-minute exam. Thanks to Craig Seran of Los Altos High School and his scantron, the exam was graded immediately. The top 16 winners (2 from each high school) were invited to take the National Chemistry Olympiad on April 21st at Santa Clara University.

The chair of the committee, Tricia Takahara, presented prizes of cash, books, or pins to the top 27 winners. University Science Books and Perseus Books donated the books and Roche Bioscience generously provided cash, snacks, drinks, and the use of their facility.

Now, drum roll please, the overall winner was Lillian Pan of Lynbrook High School. She scored 54/60 – a great score on a very challenging test! Good luck to all the students participating in the national test.

Thanks also to Bonnie Charpentier, Mark Hasegawa, Robbie Korin, Bruce Raby, and Amy Takahara for helping.
Shirley Radding and Jack Riley
Receive ACS Awards

Over 20 years ago the ACS Division of Chemistry and the Law (CHAL) was born in the Santa Clara Valley section. For several years it was a sub-division and a probationary division before it received full status in 1985. Santa Clara Valley Local Section members have been critical to the establishment and growth of the Division.

At the San Diego ACS meeting the Division presented Lifetime Achievement Awards (as engraved mantle clocks) to charter members Shirley Radding and John (Jack) Riley to recognize their long term and continued support of the Division.

Shirley is now retired from SRI International in Menlo Park and is well known to SCV members. She served as Chair of CHAL and on its Executive Committee as its newsletter editor for years and has received the Division’s Middlekauf Service Award.

Jack is now retired from Lockheed in Palo Alto and is also well known to SCV members. He served as Chair of CHAL and on the Executive Committee as its membership chair for years and has received the Division’s Middlekauf Service Award.

Our congratulations to Shirley and Jack for this well deserved recognition.

Section Receives Hospitality Award

In September 2000 the ACS Santa Clara Valley and California local sections had a joint program at CSU - Hayward. The ACS tour speaker was Dr. Josef Nagyvary of Texas A&M University. He spoke on his avocation of violin making using chemical techniques to duplicate the tone of a Stradivarius. Three violins, including a Stradivarius, were played by a concert violinist. The speaker was so impressed with the hospitality, preparations and the venue that he nominated the two sections for a newly created ACS hospitality award. The event won a third place prize. The photograph shows Dr. Marinda Wu Chair of the California Section, Dr. Kathleen Schultz ACS Chair of the Local Section Activities Committee and Sally Peters, Chair of the Santa Clara Valley Section.

Congratulations on a job well done.

OTTENBERG SERVICE AWARD
2001 CALL FOR NOMINATIONS

It is again time to nominate candidates for the Abraham Ottenberg Service Award of the Santa Clara Valley Section.

This Award was established in 1973 by the Santa Clara Valley Section to recognize members who have rendered outstanding service to the Section. It is named after Abraham Ottenberg, a former member who devoted much of himself to service to the Section. The award consists of an engraved plaque and a check for two hundred dollars. The award recipient is selected from candidates nominated by members of the Section. Nominees must be members or affiliates of the Santa Clara Valley Section.


The nominating letter should include a brief biography of the candidate and a description or evaluation of the service(s) to be recognized by the award. Seconding nominations are not required but will be accepted.

Nominations should be sent to:
Chair
Ottenberg Award Committee
Santa Clara Valley Section, ACS
P. O. Box 395, Palo Alto, CA 94302

Nominations must be received by May 30, 2001 to be considered for the 2001 award.
Councilors’ Corner

The American Chemical Society is an organization of individuals. Throughout the Society’s 125 years, its success has been ultimately attributed to the voices of members and the willingness of these members to volunteer for posts at the local and national levels. Local sections and divisions, largely autonomous units that elect their own officers, are the two major components of the Society. At the national level, a Council and Board of Directors govern ACS. The board is the legal representative and policy-setting body of the Society. The Council is the Society’s “House of representatives”, made up of elected councilors from all local sections and divisions.

As one of the “large” (over 3300 members) sections in the ACS, the Santa Clara Valley section has 7 councilors and 7 alternate councilors. Each of our councilors participates as part of this legislative body by volunteering to serve on a governance committee of the Council. This service, in turn, keeps our section informed on Society policy, programs and actions. At April’s executive committee meeting each councilor reported in detail on their committee actions. The following is a brief summary of their reports. Each councilor is eager to discuss their committee activities further and can be reached at their attached email addresses.

Last year Bonnie Charpentier was elected to the Council Policy Committee (CPC). (The national organization loves acronyms!) CPC plans the agenda for Council meetings, nominates councilors for the Nomination and Elections Committee (N & E), and conducts long-range planning studies for the future of the ACS. In San Diego they considered changing the date of National Chemistry Week (NCW) and its implications. This year’s theme is “Chemistry and Art”. Reports on the Presidential Task Force on financial support to local sections and divisions were discussed. Bonnie urged us all to view these reports at http://membership.acs.org/p/ptf if you are interested in resources and funding for your local section or divisions.

Bonnie Charpentier  
bonnie.charpentier@roche.com

Linda Brunauer was newly appointed as an associate to the Women Chemists Committee (WCC). This committee encourages women to take an active interest in the Society by focusing on attracting women to careers in chemistry, mid-career development, and recognizing the contributions of women chemists. Linda was also busy overseeing her student affiliates at poster sessions in both Sci-Mix and at research sessions, as well as, returning to Santa Clara in mid meeting to teach her classes!

Linda Brunauer  
lbrunauer@scu.edu

Ean Warren was also new to committee service as a member of the Younger Chemists Committee (YCC). The mission of YCC is to lead younger chemists (under age 35) into successful careers in the chemical profession and to active roles in ACS. At this meeting they worked on improving their web site http://membership.acs.org/scripts/y/ycc/home/default.asp and organizing programs for the Fall meeting. In Chicago there will be sessions on “Financial Planning”, “Teaching Opportunities at Small or 2-Year Colleges”, and “Alternate Careers”, preceded by a fun run!

Ean Warren  
ewarren@scvacs.org

Sally Peters is serving her sixth year on the Meetings & Expositions Committee (M&E). M&E is responsible for the arrangement, financing, and site selection of the national, international, and regional meetings and exposions. Because of the large number of attendees and the exposition requirements of the national meetings they are currently planning for the meetings 15 years in advance! The members of M&E are planning for 2013 and 2014 without the use of a crystal ball! One visible result of this committee was the decision (and financial support) for the LCD projectors for the 75 meeting rooms in San Diego.

Salley Peters  
speters@parc.xerox.com

Jack Riley is our “senior” councilor. Over the years Jack has served on at least a dozen different committees. He is probably our most knowledgeable councilor about all of the governance of the society. The SCV section has benefited continually from his commitment to the Society. Jack is now a member of Constitution and Bylaws (C&B). C&B reviews and recommends changes in the bylaws of local sections and divisions, interpreting and initiating action to eliminate conflicts with the national constitution and bylaws. Currently there are 17 local sections and 11 divisions under review. The controversial issue at this meeting involved the North Jersey election of councilors that did not follow their bylaws and election procedures.

Jack Riley  
jariley@atdial.net

SOCED (Society Committee on Education) is the committee served by Maureen Scharberg. It is one of the more crucial committees because it recommends programs, funding, and policies related to chemical education for all levels - elementary school to the university level. The popular student affiliate program falls under their auspices. Maureen felt the highlights of the meeting were the projects of the ACS Education Division (www.acs.org/education) and the issues related to the federal education policies and funding. She strongly recommends joining the ACS Legislative Action Network at www.acs.org/government/action/ for updates on federal legislation involving science education and R&D policy.

Maureen Scharberg  
scharbrg@pachell.net
Herb Silber currently serves on the Committee on Committees (ConC), which is the “granddaddy” of all the many council committees. ConC studies the composition of all of the national committees and makes recommendations to the President and Chairman of the Board for membership on the rest of the committees. As a member of ConC, he has the added function of representing them on two other committees! Herb feels the Committee on Technician Affairs (run by and for chemical technicians) is the best organized and run of the committees!

Happy Mother’s Day!
CHEMPLOYMENT ABSTRACTS 3482
Position Title: Research Scientist II, Research Associate I/II, Chem Development/Radio Chem
Job Description: Working in a team, carry out processes and activities for discovery of safe, economical synthetic routes to organo-pharmaceutical ingredients (API). Carry out scale-up activities (large scale & pilot plant equipment) to produce batches of APIs per GMP guidelines.
QUALIFICATIONS DESIRED
Education: PhD or equivalent in organic chem. BS with 5 yrs exp. BS with 10 yrs exp.
Job Code: 4172-ACS Research Associate II, research associate I
Location: Palo Alto
Salary: Competitive salary & benefits
Description of Employer: Established contract research organization.
Application Instructions: Send resume and cover letter to:
Calyx Therapeutics Inc.
3513 Breakwater Avenue
Hayward, CA 94545
Phone: 510-780-1025
Fax: 510-625-1776
Email: cwebber@calyxtech.com
Application Code: www.advmedicine.com
CHEMPLOYMENT ABSTRACTS 3483
Position Title: Research Associate, Medicinal Chemistry
Job Description: Provide new chemical entities for evaluation in drug discovery projects. Carrying out synthetic procedures, purify products & interpret data to support proposed structure.
QUALIFICATIONS DESIRED
Knowledge of one or more instruments for surface QC analysis, with laser mass spectrophotoperf. Familiarity with design of exp (DOE) is a plus.
LOCATION, SALARY, MAIL ADDRESS
Description of Employer: Leading biotech company.
Application Instructions: Send resume and cover letter to:
Calyx Therapeutics Inc.
3513 Breakwater Avenue
Hayward, CA 94545
Phone: 510-780-1025
Fax: 510-625-1776
Email: cwebber@calyxtech.com
CHEMPLOYMENT ABSTRACTS 3484
Position Title: Synthetic Organic Chem, Biotech Department
Job Description: Responsible for selecting and developing strategies for biopharmaceutical/chemical development.
QUALIFICATIONS DESIRED
Education: BS/MS or PhD, chem, pharmaceutical science or related field
Experience: 2 yrs exp.
Location: South San Francisco
Salary: Competitive salary & benefits
Description of Employer: Established biotech company.
Application Instructions: Send resume & cover letter to:
Sugen, Inc.
301 Hillview Avenue
Palo Alto, CA 94304
Phone: 650-424-8159
Fax: 650-625-1776
Email: kmeyer@lumicycle.com
APPLICATION CODE: www.advmedicine.com
CHEMPLOYMENT ABSTRACTS 3485
Position Title: Protein Separation Scientist, Protein Chemistry
Job Description: Responsible for developing and implementing affinity chromatography strategies for protein separation on high-density biochip arrays surfaces. Also responsible for designing and developing large scale liquid handling robotics, mass spectrometry and protein identification.
QUALIFICATIONS DESIRED
Education: PhD, protein chem and/or related fields
Salary: Competitive salary & benefits
Description of Employer: Leading biotech company.
Application Instructions: Send resume and cover letter to:
Sugen, Inc.
301 Hillview Avenue
Palo Alto, CA 94304
Phone: 650-424-8159
Fax: 650-625-1776
Email: kmeyer@lumicycle.com
APPLICATION CODE: www.advmedicine.com
CHEMPLOYMENT ABSTRACTS 3486
Position Title: Production Chemist
Job Description: As part of the Biotech production group, responsible for executing microarray 4c2 operational procedures for the production of BioChips, maintaining lab function & preparing chemicals supplies inventory.
QUALIFICATIONS DESIRED
Knowledge of one or more instruments for surface QC analysis, with laser mass spectrophotoperf. Familiarity with design of exp (DOE) is a plus.
LOCATION, SALARY, MAIL ADDRESS
Description of Employer: Leading biotech company.
Application Instructions: Send resume and cover letter to:
Calyx Therapeutics Inc.
3513 Breakwater Avenue
Hayward, CA 94545
Phone: 510-780-1025
Fax: 510-625-1776
Email: cwebber@calyxtech.com
CHEMPLOYMENT ABSTRACTS 3487
Position Title: Research Associate, Medicinal Chemistry
Job Description: Provide new chemical entities for evaluation in drug discovery projects. Carrying out synthetic procedures, purify products & interpret data to support proposed structure.
QUALIFICATIONS DESIRED
Knowledge of one or more instruments for surface QC analysis, with laser mass spectrophotoperf. Familiarity with design of exp (DOE) is a plus.
LOCATION, SALARY, MAIL ADDRESS
Description of Employer: Leading biotech company.
Application Instructions: Send resume and cover letter to:
Calyx Therapeutics Inc.
3513 Breakwater Avenue
Hayward, CA 94545
Phone: 510-780-1025
Fax: 510-625-1776
Email: cwebber@calyxtech.com
CHEMPLOYMENT ABSTRACTS 3488
Position Title: Analytical Chemist
Job Description: Perform chemical analysis using HPLC and wet chemistry techniques to provide timely support of chem manufacturer activities.
QUALIFICATIONS DESIRED
Education: MS/PhD chem. Experience: 2 yrs industry exp in analytical chemistry. Strong HPLC exp required & LC/MS exp desirable. Should be efficient in word processing and spreadsheets.
LOCATION, SALARY, MAIL ADDRESS
Description of Employer: Leading biotech company.
Application Instructions: Send resume & cover letter to:
HR Manager
Calyx Therapeutics Inc.
3513 Breakwater Avenue
Hayward, CA 94545
Phone: 510-780-1025
Fax: 510-625-1776
Email: cwebber@calyxtech.com
CHEMPLOYMENT ABSTRACTS 3489
Position Title: Medicinal Synthetic, Organic Chemist
Job Description: Design/synthesize novel org molecules as drug candidates, interact with biologists & pharmacologists on project teams, & utilize biosynthetic results to expedite drug discovery process.
QUALIFICATIONS DESIRED
Education: PhD org chem. Experience: 0.5 yrs post doctoral exp in org synthesis or exp. Excellent skills in spectroscopic (NMR, MS) & separation (HPLC, flash chromatog) methods. Excellent interpersonal & problem solving skills are essential. Exp with natural parallel synthesis a plus.
LOCATION, SALARY, MAIL ADDRESS
Description of Employer: Leading biotech company.
Application Instructions: Send resume & cover letter to:
HR Manager
Calyx Therapeutics Inc.
3513 Breakwater Avenue
Hayward, CA 94545
Phone: 510-780-1025
Fax: 510-625-1776
Email: cwebber@calyxtech.com
CHEMPLOYMENT ABSTRACTS 3490
Position Title: Laboratory Technician
Job Description: Perform general lab procedures. Part time or full time
QUALIFICATIONS DESIRED
Education: BA/BS science
LOCATION, SALARY, MAIL ADDRESS
Description of Employer: Leading biotech company.
Application Instructions: Send resume & cover letter to:
HR Manager
Calyx Therapeutics Inc.
3513 Breakwater Avenue
Hayward, CA 94545
Phone: 510-780-1025
Email: cwebber@calyxtech.com
CHEMPLOYMENT ABSTRACTS 3491
Position Title: Research Scientist, Scientist Stability and GMP
Job Description: Drug substances and drug product stability testing related activities, including protocol writing, contract lab selection/monitoring, stability data review, database management, stability report testing, analytical method transfer; analytical SOP writing & regulatory document controls; review of notebooks & lab data to ensure regulatory compliance.
QUALIFICATIONS DESIRED
Education: BS/MS or PhD, chem, pharmaceutical science or related field
Experience: 5-7 yrs of pharmaceutical exp.
LOCATION, SALARY, MAIL ADDRESS
Description of Employer: Leading biotech company.
Application Instructions: Send resume & cover letter to:
HR Manager
Calyx Therapeutics Inc.
3513 Breakwater Avenue
Hayward, CA 94545
Phone: 510-780-1025
Fax: 510-625-1776
Email: cwebber@calyxtech.com
CHEMPLOYMENT ABSTRACTS 3492
Position Title: Analytical Chemist
Job Description: Analytical related activities, including method development/validation, GLP/GMP compliance, contract work, and leading a team in support of product development projects.
QUALIFICATIONS DESIRED
Education: BS/MS or PhD, chem, pharmaceutical science or related field
Experience: 1-2 yrs exp. with pharmaceutical analytical method development.
LOCATION, SALARY, MAIL ADDRESS
Description of Employer: Leading biotech company.
Application Instructions: Send resume & cover letter to:
HR Manager
Calyx Therapeutics Inc.
3513 Breakwater Avenue
Hayward, CA 94545
Phone: 510-780-1025
Fax: 510-625-1776
Email: cwebber@calyxtech.com
CHEMPLOYMENT ABSTRACTS 3493
Position Title: Research Associate, Preformulation Chemist
Job Description: Evaluate the physical/chemical properties of new drug candidates relevant to formulation development, including crystallinity, solid state & solution stability/solubility in pharmaceutically acceptable vehicles. Will also perform formulation support of basic in vivo studies.
QUALIFICATIONS DESIRED
Education: BS chem with 3 yrs exp or MS with 1 yr exp.
Experience: Background must demonstrate an understanding of fundamentals of physical-organic chem and/or pharmaceuticals, exp with pharmaceutical analysis highly desirable.
LOCATION, SALARY, MAIL ADDRESS
Description of Employer: Leading biotech company.
Application Instructions: Send CV/resume, indicating Job Code: 03-188 to:
Advanced Medicine, Human Resources
101 Gateway Blvd., South San Francisco, CA 94080
Email: resume@advancedmed.com
Fax: 650-809-0121
www.advmedicine.com
CHEMPELOYMENT ABSTRACTS 3494

Position Title: Research Associate, Chemistry
Job Description: Plan & conduct syntheses of org molecules from a wide variety of structural types, including heterocyclic systems & peptides.
QUALIFICATIONS DESIRED: Education: B.S. or M.S. or Ph.D. experience. Experience: 5+ yrs related experience.
Location, Salary, Mail Address: Redwood City, CA 94063, salary & benefits desired. Should also possess excellent communication & writing skills.
Application Instructions: Submit resume to: HPLC. E-mail: jobs@komag.com

CHEMPELOYMENT ABSTRACTS 3495

Position Title: Research Associate, Mass Spectrometry
Job Description: Provide routine ms service for diverse small org compounds. Perform routine prep of sample prep. Submit MS instrum. operation & mass spec analysis to synthesize & assist in development, validation & execution of HPLC & LC-MS methods to provide bioanalytical support for drug metabolism studies.
QUALIFICATIONS DESIRED: Education: BS/MS or ME/PhD chem or related discipline. Experience: 1-3 yrs exp in MS lab. Salary: Competitive salary & benefits.
Location, Salary, Mail Address: Redwood City, CA 94063. Salary: Competitive salary & benefits. Experience: 3+ yrs related MS experience. Document & assist with tech reports.
Application Instructions: Send resume to: Genelabs Technologies, Inc.

CHEMPELOYMENT ABSTRACTS 3496

Position Title: Sr. Chemist/Staff Scientist
Job Description: Using liquid & gas chromatog & chem methods, perf. method & method quality review perf. enhancements or develop & validate. Under minimal supervision, initiate reviews & any subsequent modifications, establish timetables, communicate problems & solve serious other issues contributing to proj. progress.
QUALIFICATIONS DESIRED: Education: BS/MS/PhD chem or pharmaceut sci. Experience: 5+ yrs hands-on analytical exp in pharmaceutical company. Should be a team player with knowledge of regulatory requirements for raw pharmaceutical usage & GMP stds.
Location, Salary, Mail Address: Mountain View, CA. Location: Mountain View. Description of Employer: A research-based pharmaceutical company focused on developing & bringing to market prods with enhanced therapeutic value using our innovative drug delivery techniques.
Application Instructions: Send resume to: Job Code 52-239. E-mail: jobs@alza.com

CHEMPELOYMENT ABSTRACTS 3497

Position Title: Associate Chemist
Job Description: Synthesis of new organic cmpds to be evaluated as antimicrobial agents.
QUALIFICATIONS DESIRED: Education: B.S. or Ph.D. in org.chem. Experience: At least 1 yr of independent research exp in org synthesis is required. A record of publication is desirable. A few yrs exp in a synthetic organic chem enviren.
Location, Salary, Mail Address: Fremont, CA 94538. Location: Fremont. Salary: Competitive salary & benefits.
Application Instructions: Send resume to: Human Resources

CHEMPELOYMENT ABSTRACTS 3498

Position Title: Research Associate, Analytical R&D
Job Description: Support development projs with chem (Chromatog) & physical analysis of pharmaceuti. formulations including stability analysis. Conduct & develop analytical methods development & validating. Prepare documentation & assist with tech reports.
QUALIFICATIONS DESIRED: Education: BS/MS chem or related field. Experience: 3+ yrs preferably in pharmaceutical ind. Experience: 1+ yrs exp in analytical instrumentation, e.g. HPLC & GC & computerized data systems. Through documentation & attention to detail. Good math, verbal & written communication skills.
Location, Salary, Mail Address: Alameda, CA 94501. Salary: Competitive salary benefits. Experience: 1-3 yrs exp in ESI-MS, HPLC or LC-MS & exp in cell biology or biochemistry.
Application Instructions: Send resume to: E-mail: info@devchem.com

CHEMPELOYMENT ABSTRACTS 3499

Position Title: Organic Synthetic Chemist
Job Description: Responsible for executing & conducting synthesis of novel org substances for biochip microarrays fabrication & protein assays. Apply hands-on exp to developing std operational procs for novel derivatization & multifunctional reagents using broad range of functional groups, develop & enhance instrument needs for purification, including polymer derivatizers.
QUALIFICATIONS DESIRED: Education: BS or MS org chem. Experience: At least a few yrs related academic &/or industrial exp & ability to perform in diverse inter-disciplinary environment. Knowledge of NMR, chromatog, & other identification analytical techniques is desirable.
Location, Salary, Mail Address: Fremont, CA 94538. Salary: Competitive salary & benefits & stock options.
Application Instructions: Send resume to: Valerie Barrett.

CHEMPELOYMENT ABSTRACTS 3500

Position Title: Protein Separation Scientist, Protein Chemistry
Job Description: Responsible for developing & implementing of affinity chromatog strategies for protein separation on high-density biochip arrays surfaces. Develop & evaluate bioscalar function by using liquid-handling robotics & laser microarrays fabrication & protein assays. Apply hands-on exp to developing std operational procs for novel derivatization & multifunctional reagents using broad range of functional groups, develop & enhance instrument needs for purification, including polymer derivatizers.
QUALIFICATIONS DESIRED: Education: PhD protein chem and/or related fields. Experience: 3+ yrs relevant industrial exp, hands-on expertise in protein separation & bioconjugate chem & ability to perform in diverse interdisciplinary environment & familiarity with design of experiments & labs. Experience: 5+ yrs relevant industrial exp, hands-on expertise in protein separation & bioconjugate chem & ability to perform in diverse interdisciplinary environment & familiarity with design of experiments & labs.
Location, Salary, Mail Address: Fremont, CA 94538. Salary: Competitive salary benefits & stock options.
Application Instructions: Send resume, cover letter & 3 references to: Email: mvbarrett@sunkistgrowers.com

CHEMPELOYMENT ABSTRACTS 3501

Position Title: Production Chemist
Job Description: Responsible for producing micromixing & related operational procs. Responsible for the produc. of BioChips using the lab equipment & chemicals supplied by company.
QUALIFICATIONS DESIRED: Education: BS and/or MS org chem, preferable surface org. & polymer chem. Experience: A few yrs industrial lab exp. Ability to perform in diverse interdisciplinary environment. Knowledge of one or more instrs for surfacet QCS analysis with mass spec exp preferred. Familiarity with design of experiments is a plus.
Location, Salary, Mail Address: Fremont, CA 94538. Salary: Competitive salary & benefits & stock options.
Application Instructions: Send resume, cover letter & 3 references to: Email: mvbarrett@sunkistgrowers.com

CHEMPELOYMENT ABSTRACTS 3502

Position Title: Engineer/Engr. Engineer
Job Description: Obtain analytical data at US location in support of mar & contaminating characterization, as well as failure analysis. Test tools used are Ion Chromatog, GC/MS, FTIR & Raman Spect. Includes work assignment planning, coordination & interaction with customers & customer eng managers as well as process & prod managers & engns. Be capable of working independently & have good communication skills to relay results & recommendations.
QUALIFICATIONS DESIRED: Education: BS/Ms chem, chem eng or related field. Experience: At least 3 yrs exp in chem lab in computer or semiconductor ind & able to work in diverse interdisciplinary environment. Knowledge of one or more instrs for surfacet QCS analysis with mass spec exp preferred. Familiarity with design of experiments is a plus.
Location, Salary, Mail Address: San Jose, CA 95131. Salary: Competitive salary & benefits.
Application Instructions: Send resume to: Artm: Staffing.

CHEMPELOYMENT ABSTRACTS 3503

Position Title: Compound Scientist/Staff Scientist
Job Description: Using liquid & gas chromatog & chem methods, perform method & method quality review, perform enhancements or develop & validate. Under minimal supervision, initiate reviews & any subsequent modifications, establish timetables, communicate problems & solve serious other chemists contributing to proj. progress.
QUALIFICATIONS DESIRED: Education: BS/MS/PhD chem or pharmaceutical sciences. Experience: 5+ yrs hands-on analytical exp in pharmaceutical company. Should be a team player with knowledge of regulatory requirements for raw pharmaceutical usage & GMP stds.
Location, Salary, Mail Address: Mountain View, CA 94039-7210. Location: Mountain View. Description of Employer: A research-based pharmaceutical company focused on developing & bringing to market prods with enhanced therapeutic value using innovative drug delivery techniques.
Application Instructions: Send resume to: Job Code 52-239. E-mail: jobs@alza.com

EMPLOYMENT HELP IN OTHER AREAS OF CALIFORNIA

California Section
Ms Holly Kreuter
American Chemical Society
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MAY 2001 NEWSLETTER TOPICS:

- Nanotechnology: Manufacturing as Extended Chemistry
- Chair’s Message
- May Dinner Meeting
- Chemistry Olympiad
- Nominations for 2002 Petition Candidates
- Shirley Radding and Jack Riley Receive ACS Award
- Section Receives Hospitality Award
- Ottenberg Service Award: 2001 Call for Nominations
- Councilors’ Corner

CHEMPSLOYMENT ABSTRACTS

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FUTURE MEETINGS

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 4 - Jun 19</td>
<td>Illustrating Nature Exhibit</td>
</tr>
<tr>
<td></td>
<td>Santa Cruz</td>
</tr>
<tr>
<td>May 6-10</td>
<td>Intel ISEF</td>
</tr>
<tr>
<td>May 16</td>
<td>May Excomm Meeting</td>
</tr>
<tr>
<td>May 20</td>
<td>Bay to Breakers Run</td>
</tr>
<tr>
<td>May 24</td>
<td>Nanotechnology</td>
</tr>
<tr>
<td></td>
<td>Dr. Ralph Merke</td>
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<tr>
<td>Jul 28</td>
<td>Annual Wine Tasting &amp; Awards</td>
</tr>
<tr>
<td></td>
<td>Stanford University</td>
</tr>
<tr>
<td>Aug 26-30</td>
<td>National ACS Meeting</td>
</tr>
<tr>
<td></td>
<td>Chicago, IL</td>
</tr>
</tbody>
</table>

SANTA CLARA VALLEY SECTION

2001 SECTION OFFICERS

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Phone</th>
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<tbody>
<tr>
<td>Chair</td>
<td>Sally Peters</td>
<td>650-812-4994</td>
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<tr>
<td>Chair-Elect</td>
<td>Jon Touster</td>
<td>650-723-4340</td>
</tr>
<tr>
<td>Secretary</td>
<td>Karl Marhenke</td>
<td>831-479-6263</td>
</tr>
<tr>
<td>Treasurer</td>
<td>Hong Gao</td>
<td>650-564-5197</td>
</tr>
<tr>
<td>Past-Chair</td>
<td>Ean Warren</td>
<td>650-329-4554</td>
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</tbody>
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