
Research Group prague letter mt. olympus hike protein atlas project
Letter Prague to Research Team Group 8-1-?? onionskin paper.pdf
Mt Olympus research group hikes announcements 1993 1995 .pdf
Protein Atlas draft.pdf

Sunday Aug. 21 - 9th anniv of the "occupation" of Czech by its friendly neighbors - been here nearly 2 weeks - a week to go. Symp. was quite good. Kim's talks & mine were very well received - lots of interest - Rivsdorf (Don knows who he is) asked Kim & A to collaborate with him on some surface protein ads. topics. Also 3 surface chemists had no objections to our contact angle work & treatment: Smolders, Neumann, & Holly. So we may be on semi-firm ice!

Some specifics:

Don: Have had long discns with several people regarding our interest in going to hi water contents - it appears the only way to do so with reasonable purity and without going to another system is to use the diethyl. glycol monoMA - the triglycol is too hard to purify. the diglycol will get us to ~ 90% H_2O. J. Kop. outlined the prep'n & purific:

MMA + diglycol + CH_3ONa $\xrightarrow{60°C}$ then into 1 liter of water → MMA / H_2O

1 : 1 (1 liter)

Na in CH_3OH / sp. to ~ 4 N use 10-20 ml of this sol'n / l of MMA + diglycol

Take water part cntng crude monomer and extract 10 x in 2 l Pet. ether (< 60°C fract). Keep water phase. Add NaCl to decr. solub. of monomer. Now extract H_2O-NaCl-monomer sol'n in diethyl ether 2-3 x, The monomer goes into the ether. Evap. ether. Distill under very good vacuum. The whole process results in ~ 2-5% eth. glycol in monomer, which may not be a problem for our work. Further details in early paper by J. Kop, E.D. Lee in JPS pt C. (may be in German but partial xlation is in my file - (12) PHEMA) J. Kop. says inhibitor used in dist. is critical. $CuCl_2$ must be clean - should be white - if not white its oxidized. Clean by dissolving in acid but all acid must be washed out to eliminate pH prob. during distillation. Good luck! Would bring some with if I were coming straight home. May try anyway.

Don-Katy Great concern with free I_2 or I^- and free fluoresc. label skewing up protein ads. studies of gels. There are several people here who concentrate on fluoresc. labeling. For Proteins they've selected fluorescamine (FA):

2.8 mg FA in 7 ml acetone, dissolve, cool w/ice, add. by fast stirring to 25 ml precooled sol'n cntng 2 mg/ml BSA in 0,05 M borax (a buffer - see Jamilla's buffer book - may also be one of the buffers used in our electrophoresis system). Let react for 3', then dialyze against ice-cold Ringers for 20 hrs (2 changes). Last dialysis at rm. T for 1 hour. Final vol. adjusted to 50 ml ⇒ 1 mg/ml BSA-FA in Ringers sol'n. See my file on Fluorescein (6) - there should be some stuff on FA & its use for protein labeling. After preparing it, then characterize by column chromatography as for FITC-albumin.

Rick - please look at abs-emiss spectra of FA and BSA-FA. You can use the Spinco fluorometer spectrometer in Pharmacy. Go over and meet Katy's ex-boss (can't think of his name and he'll check you out on it). Look over Fluorescein (19) (6) and (8) for some info on the spectrofluorometer. Once you have the curves, select some optimum filters for the reflection-fluoresc. expt using FA. Cheers!

Suzy - please read very carefully the 2 abstracts by Pouchly regarding water structure. I gave you photocopies of the abstracts before I left. If you can't find them, get them from Kim. Pouchly has "proved" that use of low T DSC for water struct. work leads to artifacts. You must discuss this problem in detail in your theses. Also see Suetin & Pouchly paper on vapor sorption. Pay careful attention to his discussion that dry HEMA is glassy and becomes viscoelastic as it absorbs water. You will have to discuss effect of bulk polymer state change together with water structure considerations. Look at his paper & abstracts very carefully and consider his criticisms in detail in your theses. Good luck.

Don - Pouchly used 2-2' hydroxy ethoxy ethyl pivalate as a model saturated compound in. hydroxyethoxyethyl methacrylate (diglycol). We should try to get some in future studies.

Don - Sung - Ma - A major concern with our work (also Ravi's) is that we report things in terms of % cross-linker rather than X-L density. There is a big difference especially for TEGDMA due to cyclization, etc. Please look into getting the X-L density as well as polymer - solvent interaction parameter from swelling data. Sung's considering some of this in his comprehensive questions. Ma looked into this in some detail 3-4 years ago. The 3 of you meet and tentatively decide how best to get such information.

Don - Talked w/ Sprague who has done work on Association of Tactic PMMA in sol'n. (See Tacticity - (12)) He was very interested in our stereoreg PHEMA & expects will be able to show assoc = Long Syndio sequences are necessary for assoc. w/ PMMA. & means doing Some hi res proton NMR work. This willing (eager) to see spectra & interpret & coauthor paper. Will discuss more when & return.

One guy here worked a year w/ Rohm in NJ on di isocyanate X-L of soluble PHEMA, etc. Did try to get the reports out of Rohm. One problem he had with DMF was free amine which is difficult to remove. Have you considered this? If not, please look into this

* amine conc. of our DMF and of other grades. He says should be < 0.1 % free amine. Then of course we should also measure X-L density directly, if possible.

Gary - had a good talk with an electret guy here. He says for low charge electrets (ours) such things as T, light exposure are very important and can affect potential. He says vibrating reed (Monroe type) best for low potentials. & will be in Van Turnhout's lab on 8/30 & will write again after that.

Sasha/Rick - Considerable interest here in ion partitioning in gels & interface potentials. They measure partition and a sort of trans membrane potential (gel membrane with ionic solns of different conc. on each side) and deduce info on ion interactions with network, usually as ε(pH). They are very interested in ion conc. in & near interface & measurement of interfacial potential. Almost no data or work on cell culture substrates nor any coll adhesion studies.

Don - nothing worth discussing on blood comp. evaluation here. Considerable interest in endoth. cells. and on water soluble polymers used as drug carriers adsorbing on cell membranes.

Bob - Don - Don't forget to do swelling & surface charact of low water content HEMA-MEMA systems. If possible would be helpful to do HEMA/MMA and perhaps a 25/75 & 50/50 MMA/MEMA. This will permit us to fill things in at very low water contents. Have Sung get ~~Fig 1~~ DSC for all of these dry & equilib. with water.

Charleen - Hi - please order D. Williams, Biocompatibility of Implant Materials, Sector Publ. Co., London (Pitman), 1976 on 5447. (9/13)

Don - Your paper reads fine - much interest here in it. One ? : S-PHEMA 0.136 gH ATBMIB to 100 ml HEMA but h-PHEMA you use .099 gH / 50 ml - or 2x more ATBMIB for S-PHEMA. Why? Is that why MW of Syndio is so low? Also it needs a brief summary of conclusions at end of disc'n section.

Shao - On your paper - you say in Fig 1 h-PMMA that low BE peak at 26.0 eV is due to C=O and hi BE peak at 27.2 due to C-O. Why? Are your conclusions you should say tacticity has little effect on ESCA spectra. Need to repeat tacticities of all polymers studied in a table - See Don. Also need write up on * crystal details, including sample prep. (Bob & Don). That's all! You all have a good vacation - were on the right track! Enjoy SLC - it rains a lot here! Hope to see you in 3+ weeks. Cheers —

Please put this letter on my desk when you all are thru with it. Dekuji (thanks).

Cheers — JH

andrade (17)

Announcing the Annual Mt. Olympus "Memorial Day" Masochistic Event

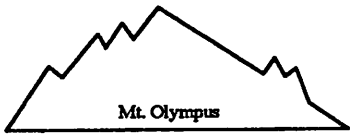
Sunday, June 18, 1995
Meet at Joe Andrade's house at 7:30 a.m.
(6009 Highland Drive)
Pack a big lunch, sun block, lots of water, supportive and comfortable shoes/boots.

This is a long and strenuous hike -- but well worth it!

The ideal after comprehensive exam mental enema!

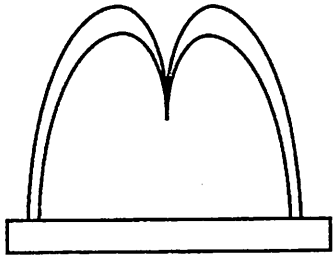
Landrode 1
(17)

NOTICE

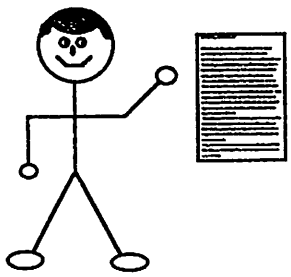


The Bioengineering MRS* invites you to participate in a unique socio-cultural experiment

the Annual Mt. Olympus Trek



Thursday, June 10, 1993
meet at 8: a.m. at McDonald's Restaurant
3300 East 3300 South to car pool to the trailhead.

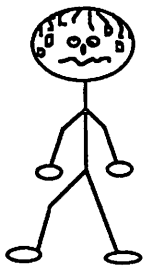


Mr. Liu will present his scheduled research seminar at approximately 12 noon --

on the ridge!

Bring your own lunch and drinks!

*MRS = Masochism Research Society



NOTE: This a long, steep, hike. Wear good, strong, comfortable shoes, and warm clothes. Pack lots of water.

For further information contact Joe, Vlado, or Eric.

The Protein Atlas

Andrade 18

Wei:	cytochrome C	Model Proteins
	myoglobin	
	superoxide dismutase	
	ribonuclease	
	dihydrofolate reductase	
	phospholipase	
Zhang	hen lysozyme	Tear Proteins
	human lysozyme	
	human lactoferrin	
	PMFA	
	transferrin	
Lin, J.-N.	IgG, IgM, prothrombin, AT *III*	
Golander	albumin	
	fibrinogen & fibrinopeptides	
Lin, Y.-S.	Complement C-1	
	Complement C-3	
	Complement C-4	
	fibronectin, vitronectin, laminin	
Ho	Factor *XII*	Contact Activation
	Factor *XI*	
	pre-kallikrein	
	high molecular wt. keninogen	
Stenelov	Factors *V* through *X*	

Yeh	luciferase	}	
	tubulin	}	
	flagellin	}	"Motion"
	dynein	}	Proteins
	kinesin	}	

Tingey	HDL/LDL

Sibrell	haptoglobin & hemoglobin

Feng	antitrypsin, macroglobulin

Protein Atlas

1. General structure and composition -- AA sequence
   sketches/diagrams/figures/carbohydrate
2. Purification/availability/sources/cost
3. Solution props. -- diffusion coefficient, molecular size, viscosity?, ...
4. Denaturation in solution -- solvent, thermal, pressure
5. Aggregation/dimerization?
6. Ligands -- specific binding properties
7. Spectral properties, uv-visible absorption
   Ir/Raman/CD/fluorescence/chromophores?
8. X-ray structure?
9. Other structural information
10. Antibody availability/types/binding construction/epitopes/
    availability/cost
11. Assays? Commercial kits?
12. Interactions with other proteins? Complexes
13. Surface properties/surface tension/adsorption
    surface-induced properties
14. Disease states -- clinical significance
15. Other information (charge transfer properties)

Hypercard