

## CHINA-UNITED STATES BIOCHEMISTRY AND MOLECULAR BIOLOGY

### EXAMINATION AND APPLICATION PROGRAM (CUSBEA)

Your Department indicated its willingness to participate in this Program, and we are here communicating our evaluation of the student making this application. We advised this student to apply to your Department for reasons summarized below.

The evaluation of students took the following form:

1. Those who did exceptionally well in the Chinese National Examinations that are required for entry into graduate school (Biochemistry and allied subjects) were screened.

The list numbered greater than 400, and 120 were invited to take the CUSBEA examinations. This group of students was specifically recommended by the relevant undergraduate schools, or the Institutes where each may be working currently.

2. The examination held under the aegis of CUSBEA was in 2 parts each of 3 1/2 hours duration and in English. The examinations were devised at Cornell and Indiana Universities. The part I covered areas of general biochemistry, and part II covered molecular biology and genetics or biological chemistry. Both parts were on a level appropriate to excellent senior undergraduates, and first-year graduates in the U.S. They included multiple choice questions, quantitative problems and open-ended questions designed to test originality and ingenuity. The examination is challenging to well-trained American undergraduates. Grading was done by Chinese biochemistry faculty, aided by an answer key provided by the group that constructed the examination.

3. The top 85 students plus 5 students who took the CUSBEA examination in 1982 were interviewed by two professors of biochemistry from the United States: Professor David W. Allmann of Indiana University Medical School; Professor Gerald Feigenson of Cornell University; and by Mrs. Allmann.

The interviews consisted of separate 20 minute sessions with all three interviewers for each student. These interviews were designed to elicit information regarding the candidate's motivation, grasp of scientific information, breadth, imagination, social adjustment and command of spoken English (see below).

4. It is obvious that adequate English is a prerequisite for success in an American graduate school. Therefore, the student's score in the English section of the National Examinations was obtained and is communicated on the evaluation sheet. In addition a listening English examination was administered this year. The examination was based on the student's performance after listening to tapes. The listening scores are also provided for each student. The interviews tested spoken English. The written scores plus the interview assessment provide a reasonable basis for judgement in this context.

5. Of the 90 students interviewed, the interviewers recommended 60 for study in the U.S. Each of the these 60 students has been advised by the interviewers to apply to 4 or 5 graduate departments in the U.S. The advice and selection of departments was based on the match of the student's interest to perceived

departmental strengths, geographical location, and the interviewers' estimate of the likelihood of acceptance.

6. The applicant's exam scores and the interviewing team's recommendations are attached. The written English exam, based on a maximum score of 100, was drawn up by the Chinese Ministry of Education. Our impression is that written English score is not well correlated with skills in oral English, as perceived during our interviews. However the listening score did appear to correlate with oral English skills as perceived during our interviews. The listening exam was based on a maximum score of 25. The CUSBEA exam part I had a maximum of 200 points, the part II exam on molecular biology had a maximum of 122 points and the biological chemistry exam had a maximum of 160 points. The means and SD of the students interviewed were as follows: part I  $143 \pm 17$ , molecular biology  $75 \pm 14$  and biological chemistry  $101 \pm 23$ . The rank of the applicant (out of the students who took the exams) is given for both exams. Finally, the student's area of research interest are given in his/her own words. The descriptive paragraph was prepared by David W. Allmann (317-264-4096); Mary Ann Allmann; and Gerald Feigenson. Professor Allmann and Feigenson have expressed their willingness to answer questions regarding specific applicants, and to elaborate on the brief evaluation summary.

The student's standing in the final group must be interpreted against the recognition that the initial group of students was already highly selected. Some of the candidates recommended are older than is usual for American graduate students. This is due to the interruption of studies by the Cultural Revolution. The interviewing team emphasizes that it has recommended only those students of whose success in good U.S. graduate programs it feels confident. The team was most favorably impressed by the quality of the Chinese students and their scientific background. Though some may be deficient in laboratory skills involving advanced biochemical techniques (due to limited availability of apparatus), and in spoken English, both deficiencies will be overcome in a reasonable time during graduate training. All students will spend approximately 8 months at the English language center in China, before coming to the U.S.

7. The Chinese government has decided to provide fellowships for 15 of the 60 selected students. The interviewers selected the top 15 students to receive a fellowship. Those students selected to receive a fellowship are so noted on the attached evaluation forms.

8. Although each student has expressed a particular area of research that they would like to pursue in graduate school, many of the students are free to choose an alternate research area.

9. Dr. Ray Wu, Cornell University, conducted a survey this summer on the performance of the Chinese students who entered graduate work in the U.S. in September of 1982. The results of that survey are seen below.

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