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Final Report **DOE Grant: DE-FG02-99ER62776**

DOE funds helped to support the participation of U.S. scientists in a meeting entitled, "DNA Repair and Mutagenesis: Mechanism, Control, and Biological Consequences" that was held at the Westin Hotel, Hilton Head, South Carolina, November 1-7, 1999. The conference was sponsored by the American Society for Microbiology and was designed to bring together the various sub-disciplines that collectively comprise the field of DNA Repair and Mutagenesis. The meeting was fully subscribed as a total of 570 scientists attended. Conferences of this type have been held at approximately 4-year intervals since 1974 and have played a critical role in the development of this exciting area of research. The preceding meeting in this informal series was held in Taos in 1995. There are no other meetings in the field that are comparable to these with respect to both scope and international participation.

The 1999 Hilton Head meeting was a great success. The conference opened with a keynote address by Bryn Bridges entitled "Mutability Doth Play Her Cruel Sports to Many Men's Decay: Variations on the Theme of Translesion Synthesis." Over the next six full days, a total of 85 speakers, 20 of whom were chosen on the basis of poster abstracts submitted to the meeting, presented their latest exciting results. The oral presentations were organized into thirteen sessions: i) Excision Repair of DNA Damage I, ii) Excision Repair of DNA Damage II, iii) Transcription and DNA Excision Repair, iv) UmuC/DinB/Rev1/Rad30 Superfamily of DNA Polymerases, v) Cellular Responses to DNA Damage, Checkpoints, and Damage Tolerance, vi) Repair of Mismatched Bases, Mutation, vii) Genome-Instability, and Hypermutation, viii) Repair of Strand Breaks, ixa) Replicational Fidelity, ixb) Late-Breaking Developments, x) Repair and Mutation in Challenging Environments, xi) Defects in DNA Repair: Consequences for Human Disease and Aging I, and xii) Defects in DNA Repair: Consequences for Human Disease and Aging II. In addition, approximately 400 posters were presented in four different poster sessions. The meeting was extremely exciting with every session marked by new and unexpected findings. For example, the session on the UmuC/DinB/Rev1/Rad30 superfamily included presentations on several members of this new family of DNA polymerases, whose activities were only recognized during the 1999 calendar year; results related to this topic were presented in other sessions as well. Another example of the cutting edge character of the meeting was the discussion of the genome of the highly radioresistant microorganism *Micrococcus radiodurans* as well as of genetic studies that are being done to determine the molecular basis of its exceptional resistance. The evaluations of the scientific program received by ASM have been highly positive.

In addition to the presence of the world leaders in the field, another feature of the meeting was the participation of younger researchers as well. To encourage their participation, sufficient funds were raised from both private and federal sources to permit the awarding of 108 $400 travel fellowships to graduate students and postdoctoral fellows. Not only was the experience of attending the meeting an important contribution to their training but their enthusiastic participation enlivened the meeting. Another feature of the meeting that worked particularly well was the format that was chosen. The first oral session ran from 9:00 am to 12:15 pm and was followed by a break until the second oral session from 4:00 to 6:45 pm. The poster sessions were held immediately after dinner from 8:00 - 10:00 pm. To facilitate informal communication, all breakfasts and dinners were served communally in a single large room. In addition, various events were held to bring scientists together late in the evening and to encourage interactions. The program format and activities enabled the participants to enjoy the type of opportunities for informal discussions and interactions that are normally found only at smaller meetings such as Gordon Conferences.

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