What was the most surprising thing that you learnt at the meeting?

I guess all new research can be surprising to some extent, but I found a session on Metabolism in Hematologic Malignancies the most interesting to me because it overlaps with my current research, and in particular, a talk by Dr Tak Mak on the role IDH1 and TET2 in AML. It is thought that IDH1 mutations may function via α-ketoglutarate dependant TET2 inhibition leading to epigenetic alterations, however Dr Mak’s group demonstrated IDH1 elicits effects independent of TET2 expression including the DNA damage response. I found this particularly interesting as BCAT1 also metabolizes α-ketoglutarate and that may help explain some of my own results.

Which speaker inspired you most and why?

What I actually found inspiring was how nervous some speakers were. Sometimes top researchers can seem untouchable and their achievements unattainable but some of the rooms at ASH were very large and it seemed to faze some of the best, it was humanizing. As a PhD student used to small seminars, the thought of lecturing to a large audience is daunting and the ease with which lecturers deliver seems like a skill you may never possess. This experience taught me it perhaps more to do with familiarity than an innate skill you either have or haven’t got. Additionally, at ASH there were many speakers at all stages of their career and that makes it easier to imagine your own progression as a scientist.

How did this grant enhance your understanding?

The grant enabled me to travel to the American Society of Hematology (ASH) Annual Meeting 2018, the annual meeting of the largest society serving clinicians and research scientists in the field of haematology, with delegates attending from nearly 100 countries. The ultimate goal for my research is to have a translational impact and improve patient survival, therefore it is important to understand AML treatment from a clinical perspective. Conference attendance provided me a unique opportunity to learn from and interact with world leading clinicians.

What is BCAT1?

BCAT1 contains a CXXC motif, a feature of many antioxidant enzymes such as thioredoxin that are able to metabolize reactive oxygen species (ROS). His research focuses on how altered expression of BCAT1 affects redox homeostasis and how this impacts processes dysregulated in cancer such as proliferation, differentiation and apoptosis. Cancer cells are known to favour pro-oxidative states that induce proliferative signalling yet maintain ROS at sub-lethal levels, therefore targeting the antioxidant capacity of BCAT1 to induce cell death, which may open a promising treatment option for patients with aberrant BCAT1 expression.

How does BCAT1 function in AML development?

BCAT1 is currently investigating the role of the aminotransferase BCAT1 in acute myeloid leukaemia (AML) development. BCAT1 contains a CXXC motif, a feature of many antioxidant enzymes such as thioredoxin that are able to metabolize reactive oxygen species (ROS). His research focuses on how altered expression of BCAT1 affects redox homeostasis and how this impacts processes dysregulated in cancer such as proliferation, differentiation and apoptosis. Cancer cells are known to favour pro-oxidative states that induce proliferative signalling yet maintain ROS at sub-lethal levels, therefore targeting the antioxidant capacity of BCAT1 to induce cell death, which may open a promising treatment option for patients with aberrant BCAT1 expression.
Were there any fun social events that helped you?
The poster sessions were actually the best opportunity to build networks—set at the end of the day with drinks provided so everyone is relaxed and mingling. Whilst presenting my poster, I had a number of interesting conversations and helpful suggestions on future direction. Despite being set in the USA it was also surprisingly a great setting to get to know other UK-based scientists also presenting at the conference. If nothing else being from UK is a great conversation starter when you are far from home!

What motivated you to become a scientist?
I have always been interested in the discovery of new things, but I also love how science can make sense of the world. Training in the scientific method and its logical underpinnings provide you with the framework to interrogate the world around you and help you critically evaluate evidence. I think this is becoming increasingly important as the internet has multiplied our available sources of information exponentially. As Richard Feynman once said: “I have the advantage of having found out how hard it is to get to really know something” and that has great utility today where we are bombarded with pseudoscience, anecdotal evidence and fake news.

Why should other members apply for grants from the Biochemical Society?
Besides the obvious of providing you the means to get to a conference and disseminate your research, application for grant is the first experience a scientist has applying for funding which is a crucial skill if you are to sustain a successful research career. I hope that this grant from the Biochemical Society will be the launch pad to more successful applications and more science. I would like to thank the Biochemical Society and the University of Worcester Graduate School for providing additional funding.

What souvenir did you bring back with you?
It was my first time in California, and I have always liked the Californian flag, so I bought a fridge magnet of that to remind me of my trip. I also bought my girlfriend a vintage 1950’s style American apron from a diner because she likes to bake cakes and for selfless reasons, I like to encourage her!

Further reading
- American Society Hematolog: https://www.hematology.org

James Hillier is a final year PhD student within the Worcester Biomedical Research Group at the University of Worcester. He attended the American Society of Hematology (ASH) Annual Meeting (1–4 December 2018), held in San Diego, California, following the award of a travel grant from the Biochemical Society.