



# Crossing into Jordan

**BTL's international expansion has continued in 2006 with close links established with the Arab Pharmaceutical Manufacturing Company of Jordan.**

The Arab Pharmaceutical Manufacturing Company is a rapidly growing pharmaceutical manufacturer with a market all over the middle east and beyond, producing products approved to EU GMP standards. Their medical research and development activities specialize chiefly in formulation of dosage forms, analytical development, stability studies, and biological evaluation of finished products.

APMC Technical Director Dr Nadia Ghazal has attended one of BTL's training courses, marking the start of a very positive relationship which has continued throughout the last two years. In 2006 BTL has been able to provide a range of services, including consultancy on an existing lyophiliser and its application, and the recommendation for the purchase of new research equipment.

A *Lyostat2* freeze-drying microscope, ordered earlier in the year, was installed and commissioned this December by BTL's Dr Kevin Ward. The *Lyostat2* is to be used to evaluate and help quantify critical parameters for new freeze dried products, so that lyophilization cycles can be developed on a rational basis. This is done to increase efficiency and streamline production.

The Middle East is a rapidly expanding marketplace for pharmaceutical production and we hope to hold a freeze drying course there during 2007. For further information, keep an eye on our website or contact us directly.



*BTL's Dr Kevin Ward (centre) with Dr Nadia Ghazal and colleagues from the Arab Pharmaceutical Manufacturing Company*

## Collaboration with University of Wolverhampton

A research grant has been awarded to Dr Claire Martin of the University of Wolverhampton School of Pharmacy (UK) to undertake a detailed investigation into how electrical impedance analysis (Zsin $\phi$ ) can enable a greater understanding of the patterns of behaviour of a large range of pharmaceutical formulations in the frozen state. BTL's own *Lyotherm2* instrument, which comprises Zsin $\phi$  and in-built DTA will be

central to this investigation, which represents the first collaborative research programme to be set up between our two institutions. We look forward to being able to publish some of our findings in 2007.



# Meetings

Autumn 2006 saw an unusually high number of scientific meetings worldwide that are relevant to the freeze-drying world. BTL's Tony Gaster and Dr Kevin Ward attended the meeting of ISPE (International Society of Pharmaceutical Engineers) in Vienna, Austria in September and the meeting of CPPR in Garmisch-Partenkirchen, Germany, in October, both of which focused exclusively on current topics related to product and process development, engineering issues and emerging technologies in the field of lyophilisation. Our Dr Ward gave a short presentation entitled "A Quick Tour of Freeze-Drying Microscopy" at the CPPR meeting, which is the first CPPR meeting to be held outside the USA. While we always enjoy travelling to Breckenridge, CO, USA for the regular CPPR meetings on lyophilisation and proteins, it was equally enjoyable to be in the spectacular surroundings of the German Alps this time!

Further to this, BTL co-sponsored IBC's meeting on Formulation Strategies for Protein Therapeutics (run in parallel with the annual IBC BioProcess In-

ternational meeting) in San Francisco, CA, USA, in October, where Dr Ward gave a presentation on how helpful freeze-drying microscopy (FDM), differential thermal analysis (DTA) and electrical impedance analysis (Zsinφ) can be in product formulation and lyo-cycle development. We look forward to more freeze-drying meetings in 2007, starting with our seminar in Amsterdam, The Netherlands, on 8<sup>th</sup>-9<sup>th</sup> March. Please see details about this seminar below!



# Course Notes

BTL's Tony Gaster and Dr Kevin Ward have once again been busy providing training courses in India in freeze-drying technology. During late November and early December, courses were carried out in New Delhi, Hyderabad and Goa, signifying the growing interest in freeze-drying technology on the sub-continent. BTL looks forward to more trips to India in 2007.

## **Course dates for 2007:**

- January 15th-17th 2007—Los Angeles, CA, USA
- March 5th-7th 2007—Amsterdam, the Netherlands
- May 21st-23rd 2007—Winchester, UK
- July 16th-18th 2007—San Francisco, CA, USA
- September 24th-26th 2007—New Jersey, USA
- November 12th-14th 2007—Winchester, UK

Course dates for India and the Middle East will be announced shortly.





## Installation at AstraZeneca

Earlier in the year Dr Kevin Ward was in Mölndal, Sweden, to install and provide training on a *Lyostat2* system for scientists in **AstraZeneca's** pharmaceutical analysis research and development department. Annika Pålsson of AstraZeneca

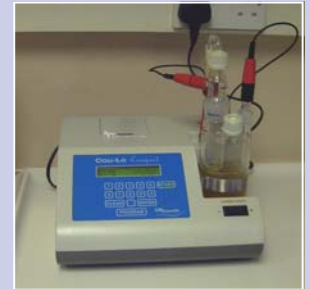
commented on the user-friendliness of the system and the ease of interpreting the microscope images.

*Annika Pålsson of AstraZeneca with her new Lyostat2 system*



BTL has recently updated their residual moisture analysis equipment to include the G R Scientific 'Cou-lo' Compact Karl Fischer. This state of the art Coulometric titrator provides fast, accurate and reproducible determinations of water content.

This equipment is capable of determining moisture results from 1ul to 10mg and enables BTL to analyse more samples in a short space of time. Analysis starts at only £39 per sample— contact us for more information!



BTL is also pleased to welcome Tom Peacock to the team. Tom joins us from Southampton University, where he gained a BSc

in Oceanography. Tom will be assisting the team with R&D work, report preparation and handling enquiries.



## SuDoKu

Everyone has gone SuDoKu crazy and we're no exception. We think this one is quite hard, so please let us know if you've managed to solve it—we haven't!

If you have any comments or suggestions about this newsletter, please contact us at the address below.

**From all of us here at Biopharma, have a Merry Christmas and a Happy New Year.**

	8			1			4	
1			4		6			2
		2				8		
	9			5			7	
5			3		4			9
	6			9			5	
		9				4		
7			2		8			6
	3			4			2	