

MY LAB

MYCOLOGY REFERENCE UNIT

Biomedical Scientist **Joanna Kronda** gives a guide tour of her Public Health Wales mycology reference laboratory.

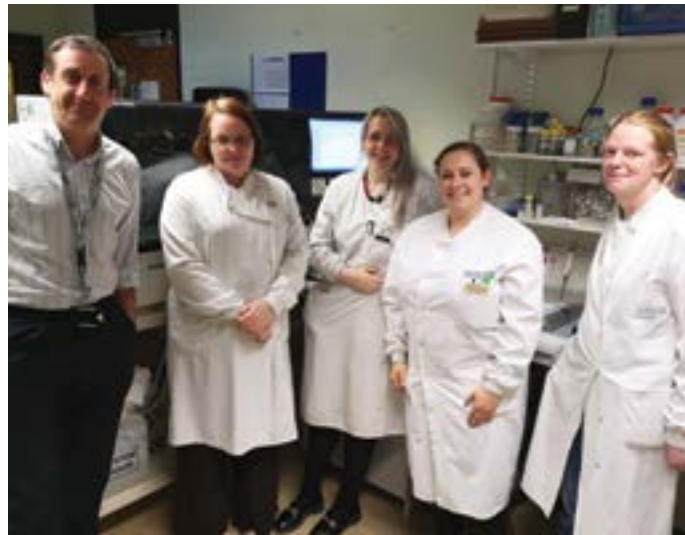
The Welsh Mycology Reference Unit is located at the University Hospital of Wales in Cardiff, which is part of Public Health Wales Microbiology. Annually, we process 25,000 patient samples, ranging from nails to tissues.

Routine clinical mycology testing is split into reference work and primary diagnostic testing. Our laboratory team of six is a very dedicated workforce and maintains an excellent quality of service, while handling the pressure of an increasing workload.

We are far more than just a “skin and nails” or an “*Aspergillus* testing centre”. Medical mycology covers a wide range of fungal pathogens.

It is a little-known fact that, globally, more people die from fungal infection than tuberculosis and malaria combined. We provide laboratory services for the diagnosis and management of fungal infections through specialist laboratory services and expert clinical and technical advice, across Wales. We are currently awaiting the outcome of May’s UKAS ISO inspection to see if we have attained full accreditation for our clinical services.

Our extensive services include: the identification of yeast and moulds (including dermatophytes), direct microscopic examination on respiratory



and tissue specimens, antifungal drug susceptibility testing of yeasts and moulds. Serological antigen testing includes the detection of 1,3- β -D-glucan, *Cryptococcus* and *Aspergillus* galactomannan antigen testing, antibody testing for *Aspergillus* IgG antibody. Polymerase chain reaction (PCR) assays for *Aspergillus* (specific), including a PCR to detect azole resistance in *A. fumigatus*, *Candida* (specific), including *C. auris*, *Pneumocystis jirovecii* pneumonia, pan fungal and mucorales PCR.

In the last 12 months, we have enhanced the service by automating the *Aspergillus* antigen and antibody ELISA tests using the EVOLIS system. This has streamlined our workflow, provided consistency and advanced our efficiency and productivity. The machine has freed up “hands-on” time to perform other daily testing.

As well as being a diagnostic service,

the department also actively participates in a lot of research locally, as well as globally, including randomised control trials and developing international guidelines. Currently, the department is aiding the research for the Fungal PCRI Initiative, which consist of 60 centres from 19 countries in Europe, Australia and North American, working together with the aim of standardising fungal PCR testing.

Our consultant clinical scientist currently sits as chair of the laboratory working

party for this project.

Aspergillus is frequently cultured from the sputum of CF patients and is associated with worse lung function and increased exacerbations. Locally, in collaboration with the cystic fibrosis (CF) unit, the laboratory is performing research to monitor level of *Aspergillus* in the homes of CF patients. Hopefully, this study will have a positive impact in the management of CF patients.

There are many other research projects and in-house validations keeping the team very busy, and which will aid in the fight against future fungal infection.

Remember – fungi do not require a host to survive or to travel, making them particularly problematic pathogens. In the last 100 years, the animal kingdom has already paid the price, with 60% of animal species infected by fungi facing extinction, if not already extinct! 