

# TEACHERS' GENETICS NETWORK NEWSLETTER

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Welcome to the Teachers' Genetics Network (TGN) newsletter from the Wales Gene Park. The TGN allows teachers across Wales, and those from bordering counties in England, to access a range of expertise from within the Wales Gene Park, to access teaching resources on genetics and be informed of the latest events from the Gene Park.

## Sixth Form Genetics Conference 2018

Save the dates for the 2018 Sixth Form Genetics Conferences in North and South Wales!

St David's Hall, Cardiff: Wed 28th November

William Aston Hall, Glyndwr University, Wrexham: Tues 20th November

Further information, including booking details, will appear in the summer edition of the TGN, but to **register your interest** please email: [walesgenepark@cardiff.ac.uk](mailto:walesgenepark@cardiff.ac.uk) or phone 02920 746940



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## Website of the term

The [Jeans for Genes](#) website has a range of films and assemblies to bring the subject of genetics to life in a lesson or in front of the whole school. Their resources, which are categorised according to Key Stage, have been developed with teachers, tested within the classroom and are national curriculum-friendly.

Pupils learn about genes, inheritance and genetic disorders through the eyes of young people who are either affected by a disorder or whose sibling is affected. Their [film library](#) houses the films made to date, and the secondary school assemblies can be found [here](#). Stories describe genetic conditions including **cystic fibrosis**, **Duchenne muscular dystrophy** and **Huntington's Disease**. Each five-minute film is accompanied by a teacher factsheet and a set of lesson resources such as quizzes, games, activities and discussion topics.

There is also information about how secondary schools can get involved in the annual **Jeans for Genes Day** on 21st September 2018, which raises money for children and families affected by genetic disorders.



## Wales Gene Park on Twitter! [@WalesGenePark](#)

Get all the latest information from Wales Gene Park or tweet us with your news. It's great to hear from you!



## Opportunity to get involved in research!

Researchers at Swansea University are looking to engage with groups of the public, including young people, to gain people's views on research. The project is called **Genetic Data Integration** (or 'Jedi' for short) and it's about using genetic data with health record data for research on health conditions that have a genetic element.

People's views on this subject are very important and the researchers are running workshops with public groups to hear their views on how best to do this safely and to bring benefits. If your school or college would like to find out about taking part, please contact Kerina Jones: [k.h.jones@swansea.ac.uk](mailto:k.h.jones@swansea.ac.uk)



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## Schools' Genetics Roadshow

Throughout the autumn and part of the spring terms, our Schools' Genetics Roadshow has been taking place throughout Wales and the borders. Events, which are aimed at year 12 and 13 biology students, have been held in schools and colleges from Pembrokeshire to Newport, and Neath to Bangor!

Students have enjoyed talks from expert speakers on topics including genomics, biodiversity and conservation, ethical issues in genetics, genetic counselling and testing, cancer genetics, biological clocks, inherited conditions, pharmacogenetics, forensic science, GM plants, stem cells, genetics and exercise, and next generation sequencing.

We would like to say a big thank you to our speakers for kindly finding the time to deliver the talks, to the teachers for hosting the events, and of course to the students for taking part!



## National DNA Day!

National DNA Day, held on **April 25th**, is a unique day when students, teachers and the public can learn more about genetics and genomics! The day commemorates the completion of the Human Genome Project in April 2003, and the discovery of DNA's double helix in 1953. The National Human Genome Research Institute [website](#) has further information and lots of great ideas for [activities](#) to celebrate the day including DNA extractions, a DNA origami challenge and lesson plans!



## Genetics in the news

### DNA surgery on embryos removes disease

Precise "chemical surgery" has been performed on human embryos to remove disease in a world first reports the [BBC](#). The team of Chinese researchers used a technique called base editing to correct a single error out of the three billion "letters" of our genetic code. They altered lab-made embryos to remove the potentially life-threatening blood disorder beta-thalassemia. The embryos were not implanted. The team says the approach may one day treat a range of inherited diseases.



Base editing is an advance on a form of gene-editing known as CRISPR, that is already revolutionising science. The study, [published in Protein and Cell](#), is the latest example of the rapidly growing ability of scientists to manipulate human DNA. It is provoking deep ethical and societal debate about what is and is not acceptable in efforts to prevent disease.

### DNA secrets of how vampire bats became bloodthirsty

DNA analysis is giving clues to how the vampire bat can survive on blood alone. The bat can drink up to half its weight in blood a day unlike other relatives, which dine on fruit, nectar or insects. Vampire bats have key differences in genes involved in immunity and food metabolism compared with other bats. Researchers say the bat's gut microbes are also distinct.

As reported by the [BBC](#), international researchers analysed both the genome of the vampire bat and its microbiome - the microorganisms that live inside the gut. They found that genome size was similar to that of other bats but the genome contained more "jumping genes" (DNA sequences that change position in the genome). These were found in areas involved in immune response, viral defence, and both lipid and vitamin metabolism, suggesting they have played a key role in the evolution of the bat's specialised diet. The common vampire bat is one of only three mammals that feed exclusively on blood. They swoop down at night to feed on the blood of cattle and other animals, including, occasionally, people.



## Forthcoming events

### Youth Cymru STEM event for British Science Week

As part of British Science week, Wales Gene Park is delighted to be taking part in the Youth Cymru STEM event at the TramShed, Cardiff on Saturday March 10<sup>th</sup>. The event is aimed at inspiring and exciting the next generation of young people to find a passion in science.



### Science in Health Live!

On March 14<sup>th</sup> & 15<sup>th</sup> Wales Gene Park will once again be part of Science in Health Live. This event forms part of the Cardiff University School of Medicine's contribution to British Science Week (which this year is from 8<sup>th</sup> to 19<sup>th</sup> March).

The event is aimed at students in Year 12 studying science and mathematics A-levels and will give attendees the opportunity to discover more about the science behind healthcare professions. We will have our **Discovering DNA** interactive stand at the event, which will include activities such as the popular DNA lucky dip and the chromosome matching game against the clock. We look forward to seeing you there!



### Coleg Gwent Progression Fair

On March 22<sup>nd</sup> Wales Gene Park is looking forward to being at the Coleg Gwent Progression Fair for the first time. The purpose of the event is to give the young people at the College an insight into the careers, volunteering and higher education opportunities that could be available to them in the future.



## Intermediate Biology Olympiad

The Intermediate Biology Olympiad challenges students' biology knowledge and encourages them to continue studying the biosciences beyond school/college.

The Olympiad will take place between 15<sup>th</sup> and 21<sup>st</sup> June 2018. The competition consists of a one-hour multiple choice test taken online in schools under staff-supervised conditions at any time convenient during the competition dates. Questions will be set on topics students are likely to have covered at GCSE and in their first year of A-level.



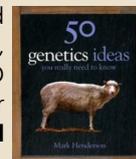
Students who take part in the competition are encouraged to reference their participation in their further/higher education applications. The Intermediate Biology Olympiad is organised by the UK Biology Competitions committee and administered by the Royal Society of Biology.



Top scoring students are rewarded with publicly recognised certificates, and will be offered the opportunity to attend an awards ceremony at IET: London, Savoy Place. High scoring students will also be invited to one-day Field Studies Council course exploring the ecology of an urban park. Every student who takes part in the competition is eligible to receive free [BioNet](#) membership for one year.

## Win a copy of "50 genetics ideas you really need to know"

We're always interested in hearing from you and would like your recommendations on resources, websites, future sessions for students, CPD courses, topics for public talks or suggestions for newsletter features. **The winning contribution will receive a free book!**



To submit your contribution, please email: [walesgenepark@cardiff.ac.uk](mailto:walesgenepark@cardiff.ac.uk)