

السيرة الذاتية

هاله هيثم محمد علي

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التحصيل الدراسي والاكاديمي:

1- درجة الدكتوراه من جامعة شفيلد/ قسم الاحياء المجهرية و البايولوجي الجزيئي (2011-2015).

Minor correction

حاصلة على شهادة الدكتوراه بتقدير

تمت دراسة الدكتوراه تحت اشراف البروفيسور ديفيد كيلبي في قسم التقنيات الاحيائية والبايولوجي الجزيئي في جامعة شفيلد/ انكلترا. ان هذه التجربة جعلتني اطور من مهاراتي في علم الاحياء المجهرية واكتساب تقنيات جديدة عالية المستوى في علم البايولوجي الجزيئي للاحياء المجهرية. فضلا عن تقنيات الكشف عن البروتينات، وظيفتها، تركيبها الثالثي وكيفية التعرف على مواقع داخل الجدار الخلوي للبكتريا. هذه التجربة ايضا جعلتني اكون من مهارات التواصل الاجتماعي والتحدث باللغة الانكليزية بطلاقة اثناء الاشتراك و حضور المؤتمرات والندوات العلمية، وكيفية جمع النتائج وتحليلها، وكذلك كيفية الكشف عن المشاكل وحلها. فضلا عن ذلك، اكتساب الثقة بالنفس والعمل بشكل جماعي ومنفرد داخل المختبر وكيفية قيادة المختبر.

هذفت الدراسة الى ايجاد تركيب ووظيفة وخصائص ثلاث جينات مشفرة الى بروتينات لها دور في تركيب الجدار الخلوي لبكتريا *Campylobacter jejuni* والتي هي المسبب الرئيسي للامراض المعوية الحادة.

تم خلال الدراسة حذف الجينات الثلاثة كلا على حده من جينوم العزلة البكتيرية وكذلك حذف جينين او الثلاثة معا ودراسة الصفات المظهرية والوراثية لكل عزلة مطفرة ومدى قابليتها لمقاومة المواد البروتينية المفترزة من الخلايا الحية للبائن من جهة والمركبات الكيميائية التي تستهدف الجدار الخلوي تحديدا من جهة ثانية. كذلك تم ارجاع الجينات المحذوفة للعزلات المطفرة لتنتج عزلات مكملة تسترد الصفات المظهرية والوراثية للعزلة الابوية. من ناحية اخرى تم عزل وتنقية هذه البروتينات عن طريق الهندسة والكلونة الوراثية باستخدام تقنيات حديثة جدا، وكذلك تم ايجاد التركيب الثالثي لاحد البروتينات بنجاح.

2- درجة الماجستير من جامعة بغداد/ كلية العلوم للبنات/ قسم علوم الحياة (2004-2007).

حاصلة على شهادة الماجستير بمعدل 88.89 % وبالمرتبة الاولى على القسم

3- درجة البكالوريوس من جامعة بغداد/ كلية التربية للبنات/ قسم علوم الحياة (1997-2001).

حاصله على شهادة البكالوريوس بمعدل 78.39 % وبالمرتبة الثالثة للدراستين الصباحية والمسائية.

السيرة المهنية والمهارات المكتسبة:

1- جامعة بغداد/ كلية العلوم للنبات/ قسم علوم الحياة (2015- ولحد الان)

1- مدرس /الاختصاص العام (علوم الحياة/الاحياء المجهرية)/الاختصاص الدقيق (احياء مجهرية جزيئي)/قسم علوم الحياة/ كلية العلوم للنبات

2- تدريس مادة البكتريا/ الاحياء المجهرية الغذائية/ التحليلات المرضية/ الفطريات (للدراصة الاولى)

3- تدريس مادة فسلجة الاحياء المجهرية / التقنيات البيئية الحيوية/ ادارة المعالجة الميكروبية (للدراصات العليا)

4- الاشراف على طلبة الماجستير

5- مسؤولة مختبر البكتريا وتحضيرات البكتريا

6- عضو اللجنة الامتحانية للدراسات العليا (2017- ولحد الان)

7- عضو اللجنة العلمية في قسم علوم الحياة 2017- ولحد الان)

8- عضو اللجنة الفرعية للاقتباس والاستلال الالكتروني للرسائل والاطاريح والبحوث العلمية في القسم

9- مقرر الدراسات الاولى في قسم علوم الحياة (2015/9/7- 2015/10/7)

10- عضو اللجنة الامتحانية للدراسات الاولى (2015-2017)

11- تقييم العديد من البحوث المنشورة في مجلة بغداد للعلوم (2015- ولحد الان)

12- تقييم لغوي للعديد من الرسائل والاطاريح/ كلية العلوم/ قسم الفيزياء/ جامعة بغداد (2015- ولحد الان)

13- اقامة العديد من دورات التحليلات المرضية التي اقيمت في قسم علوم الحياة/ التعليم المستمر (2015-2017)

14- اقامة دورة تنقية وعزل البروتينات من مصادر مختلفة التي اقيمت في قسم علوم الحياة/ التعليم المستمر (2016)

15- الاشراف على طلاب مشاريع البحوث للسنة الدراسية 2015- واحد الان

16- الاشراف على طالبة الماجستير 2017

17- المشاركة في العديد من الندوات، ورش العمل والدورات التدريبية المختلفة (2015- ولحد الان)

18- عدد كتب الشكر: 18 كتب شكر (للفترة من 2015-ولحد الان)

20- عضو لجنة مناقشة طالبة الماجستير 2017 و 2018

21- عضو لجنة المقررات لسنة 2018-2019

البحوث المنشورة والمنجزة

1-Major contribution of the type II beta carbonic anhydrase CanB (Cj0237) to the capnophilic growth phenotype of Campylobacter jejuni.

Environ Microbiol. 2015 Oct 16. doi: 10.1111/1462-2920.13092.

Al-Haideri H¹, White MA¹, Kelly DJ¹.

2- Superoxide dismutase SodB is a protective antigen against *Campylobacter jejuni* colonisation in chickens.

Vaccine. 2015 Nov 17;33(46):6206-11. doi: 10.1016/j.vaccine.2015.09.100

Chintoan-Uta C¹, Cassady-Cain RL², Al-Haideri H³, Watson E⁴, Kelly DJ³, Smith DG⁵, Sparks NH⁶, Kaiser P², Stevens MP².

3- Production, Characterization, and Antimicrobial Activity of Mycocin Produced by *Debaryomyces hansenii* DSMZ70238

Safaa Al-Deen Ahmed Shanter Al-Qaysi². **Halah Al-Haideri**² Wijdan Hameed Abd Al-Razzaq , Zaid Akram Thabit³Alkubasisi¹. Jamal Abd Al-Rahman Ibrahim¹

International Journal of Microbiology, 2017, vol.2017, Article ID 2605382, 9 pages

4- GENE EXPRESSION OF *bla*_{OXA-51}-like AND *bla*_{OXA-23} IN RESPONSE TO β -Lactam ANTIBIOTIC IN CLINICALLY ISOLATED *Acinetobacter baumannii* AND *Acinetobacter lowffii*,

Iraqi Journal of Agricultural science, 2019, 50 (3).

5-Detection of Antibiotics in Drinking Water Treatment Plants in Baghdad City, Iraq

Advances in Public Health, Volume 2019, Article ID 7851354, 10 pages

<https://doi.org/10.1155/2019/7851354>

6- Influence of Cold Atmospheric Plasma on *Acinetobacter baumannii*

Reyam radi Atta, Halah H Mohammed, Hamid H. Baghdad journal science, 2019

3- بحث منجز قيد النشر

1- Does the β -lactam antibiotic imipenem can alter the topology of periplasm, toxin production, and genomic DNA variation in clinically isolated *Escherichia coli*

Bashair Naser, **Halah Al-Haideri**

4- بحث مشترك منجز قيد الكتابة والنشر

Characterization the function of Rid Operon system and the potential role of RidL in the membrane of *Campylobacter jejuni*

2- جامعة شيفيلد/ قسم الاحياء المجهرية والبايولوجي الجزيني (ايار- كانون الاول 2013).

أ- المشاركة في المؤتمر المنعقد في جامعة مانشستر. عرض بوستر

The Society for General Microbiology Spring Conference, Manchester Central Convention Complex Manchester, UK. Poster Presentation. The Rid system: a novel type of defence mechanism against host derived antimicrobial peptides in *Campylobacter jejuni*.

ب- الاشراف على طلبة مشاريع البحوث الخاصة بالمرحلة الثالثة. تم من خلاله تدريب الطلبة على المهارات التقنية المكتسبة فضلا عن تقديم بوستر يمثل المشروع مع البحث الخاص بالتخرج.

3- جامعة شيفيلد/ قسم الاحياء المجهرية والبايولوجي الجزيني (ايار- 2014).

أ- الحصول على الجائزة العلمية في المؤتمر السنوي لجامعة شيفيلد/ كلية العلوم.

The Biological Science Division. *Annual Poster Competition 2014, University of Sheffield. Sheffield. UK.* Poster Presentation. The Rid system: a novel type of defence mechanism against host derived antimicrobial peptides in *Campylobacter jejuni*. Poster Prize Awarded.

ب- المشاركة في المؤتمر المنعقد في برمنكهام (ايلول 2014). عرض بوستر

1st Midland Molecular Microbiology Meeting M⁴, University of Birmingham. UK. Poster Presentation. Identification of a novel system against host-derived antimicrobial peptides in *Campylobacter jejuni*.

ج- المشاركة في المؤتمر المنعقد في ليفربول (ايلول 2014). مشاركة بسمنا.

Campylobacter UK Meeting, Food Standard Agency, University of Liverpool, Liverpool. UK. Oral Presentation. Identification of a novel defence system against host derived antimicrobial peptides in *Campylobacter jejuni*

د- عدد البحوث المنجزة 3

ه- المشاركة في ورش عمل مهنية ودورات تدريبية (شباط- ايار 2012)

4- جامعة بغداد / كلية العلوم للبنات/ قسم علوم الحياة (2008-2011): مدرس مساعد

أ- الحصول على شهادة تقديرية (2009) في حفل تكريم الطلبة الاوائل في قسم علوم الحياة/ جامعة بغداد

ب- الحصول على درع الجامعة للطلبة المتفوقين الاوائل المنظم من قبل جامعة بغداد/ وزارة التعليم العالي والبحث العلمي

ج- المشاركة في المؤتمر المنعقد في كلية العلوم/ جامعة بغداد (2009). المشاركة بسمنا

د- المشاركة في المؤتمر المنعقد في كلية العلوم للبنات/ جامعة بغداد (2010). المشاركة ببحث

ه- عدد البحوث المنشورة 9

و- عضو مساعد في لجنة الدراسات العليا

ز- عضو في لجنة البيت الحيواني ومسؤولة البيت الحيواني

ر- كتاب شكر من عميد كلية العلوم للبنات/ جامعة بغداد

ي- المشاركة في العديد من الدورات التدريبية وورش العمل

5- جامعة بغداد / كلية العلوم للبنات/ قسم علوم الحياة (2001-2004): بايولوجي

المهارات التقنية والعلمية المكتسبة خلال دراسة الدكتوراه

-Molecular Biology: cloning, making deletion mutants, site directed mutagenesis, design primer, PCR

-Protein biochemistry: protein over-expression, protein purification (metal affinity chromatography, Ion-exchange, gel filtration), SDS-PAGE, Tris-Tricine PAGE and protein concentration determination, development and application of Igand binding assays.

-Growing and cultivation of aerobic, microaerobic, anaerobic bacteria, microdilution assay, disc diffusion assay, growth curve, liquid culture preparation.

- Gram negative periplasmic and cell envelope preparation

- Western Blot, NMR, Circular Dichroism, Thermoflour, enzyme and kinetic assays, microscope and fluorescent light microscope

- Crystallography and protein structure determination

مهارات اخرى

IT: Microsoft Word, Excel, Power Point

- GraphPad Prism,

-End Note ,

-Turnitin and plagiarism detection soft ware

- Epi Info 7

- Mendely

Language: English

- اللغة الانكليزية

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ACADEMIC QUALIFICATIONS AND SKILLS

PhD in Molecular Microbiology at the University of Sheffield (2011-2015)

My PhD was undertaken under the supervision of Prof. David J Kelly in the Department of Molecular Biology and Biotechnology. This degree has enabled me to develop my skills in microbiology and gain more skills in high level molecular biology techniques, in addition to proteomics, protein crystallography and bioinformatics. In addition, the PhD experience improved my communication skills through presentations and conferences, scientific research, analysing and gathering data, solving the problem and working independently and as a part of a team.

My PhD study focussed on the food-borne pathogen *Campylobacter jejuni*, which is the leading cause of human bacterial gastroenteritis. The genome has many genes of unknown function, which might be important in cell physiology, colonisation or pathogenicity. Previous transcriptomic studies unveiled a distinctive regulatory system with a novel three-gene operon (here designated *ridMLP*) controlled by a small repressor protein, RidR, in *C. jejuni* NCTC 11168. The *ridMLP* operon encodes proteins with predicted localisation in the cell envelope. We showed that RidL is an outer membrane MORN-repeat protein with an unusual single-layer β -strand structure and has a protruding loop of two negatively charged residues (E₁₂₆D₁₂₇), which might have a role in binding a cationic ligand. Purified RidL was shown by NMR and Resonance Rayleigh light scattering to weakly interact with cationic antimicrobial peptides, and site-directed mutagenesis suggested the ED loop is important for binding and the overall structure of the protein. The cellular localisation of RidM, RidL and RidP in *C. jejuni* was determined by western blot analyses with FLAG-tagged Rid proteins and was consistent with bioinformatic analyses. Heterologous expression of each Rid protein in the *E. coli* cell envelope resulted in some protection against killing by cationic antimicrobial peptides. However, quantitative

viability assays of *C. jejuni* *ridM*, *ridL* and *ridP* single, *ridML* double and *ridMLP* triple deletion mutant strains revealed similar sensitivities to cationic antimicrobial peptides as for the wild type parent. The *ridML* mutant was able to colonize the chicken. Thus, no consistent evidence for a direct role of the *rid* genes in protection against antimicrobial peptides or in host colonisation could be demonstrated. However, more recent studies have shown RidL to be a lipid binding-protein which may stabilise the outer membrane. The crystal structure of RidP was successfully determined in my work and shown to be surprisingly similar to human cystatin C, a cysteine protease inhibitor. Biochemical assays showed that RidP was able to significantly inhibit papain (a cysteine protease) in comparison to a chemical inhibitor, but not pronase E (a serine protease).

Publications:

- Published paper in *Environ Microbiol* 2015 (**Major contribution of the type II beta carbonic anhydrase CanB (Cj0237) to the capnophilic growth phenotype of *Campylobacter jejuni***).
- Co-author in the published paper of SodB in Vaccine J. 2015 (**Superoxide dismutase SodB is a productive antigen against *Campylobacter jejuni* colonization in chickens**).
- Published paper in International Journal of Microbiology(Hindawi), 2017(**Production, Characterization, and Antimicrobial Activity of Mycocin Produced by *Debaryomyces hansenii* DSMZ70238**).
- Published paper in Iraqi Journal of Agricultural Science (**GENE EXPRESSION OF *bla*_{OXA-51-like} AND *bla*_{OXA-23} IN RESPONSE TO β -Lactam ANTIBIOTIC IN CLINICALLY ISOLATED *Acinetobacter baumannii* AND *Acinetobacter lowffii***).
- Published paper in Baghdad Science journal (**Influence of Cold Atmospheric Plasma on *Acinetobacter baumannii***
- Published paper in Advances of Public Health Journal (**Detection of Antibiotics in Drinking Water Treatment Plants in Baghdad City, Iraq**
- One paper on RidL is currently in preparation and a further paper including the RidP work is expected .

SKILLS ACQUIRED DURING MY PhD TRAINING

- Molecular Biology: cloning, making deletion mutants, site directed mutagenesis, design primer, PCR
- protein biochemistry: protein over-expression, protein purification (metal affinity chromatography, Ion-exchange, gel filtration), SDS-PAGE, Tris-Tricine PAGE and protein concentration determination, development and application of ligand binding assays.
- Growing and cultivation of aerobic, microaerobic, anaerobic bacteria, microdilution assay, disc diffusion assay, growth curve, liquid culture preparation.
- Gram negative periplasmic and cell envelope preparation
- Western Blot, NMR, Circular Dichroism, Thermoflour, enzyme and kinetic assays, microscope and fluorescent light microscope
- Crystallography and protein structure determination

MBioSci Zoology at the University of Baghdad (2004-2007)

- Averaging 1st class degree qualification with honours for modules taken in the first and second semester (courses):
- First courses included (%): secondary metabolites 83, Immunotechniques 83, molecular Biology 91, and Experimental Design 90, English language 76.
- Second courses included (%): Animal comparative Physiology 83, Advanced Insect Ecology 91, Biological control of Vectors 94, English language 84 and Seminars 93.
- Title of Thesis: The study of leaves and fruits Ethanolic extract of *Duranta repenes* and the fungi *Beauveria bassiana* on Mosquitos *Culex pipiens pipiens*
- Thesis and viva mark 91%
- In this study I was able to work independently on the project, rearing the mosquitoes in the laboratory under specific conditions, isolating and diagnosing fungi species, cultivating the fungi aerobically both in *vivo* and in *vitro*, designing the experimenta, handling the data, analysing the results, biochemical studies of plants and organic extractions of plant parts. The degree has also helped me to develop my social communication skills through seminars and conferences and define my work accurately and deliver the main ideas to my peers precisely.

BSc in Biology at the University of Baghdad (1997-2001)

- Averaging 2nd class degree qualification with honours for modules taken over four years with overall degree result of 78.39
- Averaging fourth year degree qualification for modules was 81.78
- Averaging third year degree qualification for modules was 77.71
- Averaging second year degree qualification for modules was 75.09
- Averaging first year degree qualification for modules was 73.55

EMPLOYMENT AND WORK EXPERIENCE

- **University of Baghdad in Biology department (June 2015-to date).**
 - Lecturer fellowship in Biology department/ University of Baghdad, giving lectures in Bacteriology modules for 2nd class undergraduate.
 - My main recent work is focused on the novel aspects of clinically isolated *Acinetobacter spp.*, multidrug resistance Gram-negative bacteria; investigate the resistant mechanisms to broad range of antibiotics that are mediated by blaOXA-like genes, and growth phenotypes of different species and mutants. In addition, I am looking for the regulation and metabolism of phosphorus by investigating the exact role of PsiE gene under different P levels, particularly in *A. lowffii*. Moreover, identification of clinically isolated *Acinetobacter spp.* is performed by using 16S-23S rRNA ITS analysis, in addition to the biochemical analysis tests.
 - Another work is involved in the regulation, expression and molecular analysis of AcrAB and MurA of clinically isolated *E.coli*
 - Further works are involved in the identification and distribution of campylobacter spp. that isolated from local chicken faecals and meat.
 - Supervision for two 4th year undergraduates, which they work on *Acinetobacter* project
 - As a part of the departmental policy and requirements;
 - Admnstration of Microbiology laboratory.
 - Membership of accreditation certificate committee.
 - Membership of higher studies committee.
 - Member ship of scientific committee in the department
 - Undertaken in the evaluation and proof reading of scientific papers and MSC/PhD thesis.
 - Participate in Five workshops.
 - Supervision of MSc degree
 - Three scientific excellence awards
 - More than 14 acknowledgment letter from the dean of the college from 2015 to date

- Recruitment membership of exams committee for undergraduate
- Recruitment membership of plagiarism detector committee

- **University of Sheffield in Molecular Biology and Biotechnology department (May- Dec 2013)**

-Participated in the Society for General Microbiology Spring Conference, Manchester Central Convention Complex Manchester, UK. Poster Presentation. The Rid system: a novel type of defence mechanism against host derived antimicrobial peptides in *Campylobacter jejuni*.

-During my third year I supervised two third year project students in the Kelly lab in which the students aimed to investigate the effect of site directed mutants in the RidL protein on the overall structure of the native protein. The transferred skills were cloning, protein expression, protein purification, Circular Dichroism, bacterial culture..

- **University of Sheffield in Molecular Biology and Biotechnology department (May 2014)**

-Awarded the Biological science Division, annual Poster Competition prize. University of Sheffield

- 1st Midland Molecular Microbiology Meeting M⁴, University of Birmingham. UK. Poster Presentation. Identification of a novel system against host-derived antimicrobial peptides in *Campylobacter jejuni*.

- Campylobacter UK Meeting, Food Standard Agency, University of Liverpool, Liverpool. UK. Oral Presentation. Identification of a novel defence system against host derived antimicrobial peptides in *Campylobacter jejuni*

- **University of Baghdad in Faculty of Science (2008-2011)**

- Assistant Lecturer and teacher at the University of Baghdad in Biology department, undertaking modules for third and fourth year students.

- Supervised two fourth year project students. The project aimed to classify and characterize the isolated bacteria and fungi from soil in industrial areas, using biochemical diagnostic kits. The deliverable skills were how to handle and cultivate the bacterial on normal, nutrient and selective media, in addition to identifying the antibiotic resistance phenotype by disc diffusion assay.

- Published 6 papers in Microbiology and Entomology discipline in the University of Baghdad journal, three of them with first authorship and the

others with the second site list. My last paper in histopathology with first authorship has been published in 2012 during my PhD study and published in the same journal as above. Participated in two scientific conferences 2009 and 2010. In addition to five workshops in development research and continues education institute at University of Baghdad.

- Awarded an Academic excellence prize form the Minister of Higher Minister of Education (2009).
- Awarded 1st degree class honours prize (University arms) from the Faculty of science, University of Sheffield (2008).
- Responsible work
 1. as an administrator in the higher study committee in Biology department.
 2. Manager and leader in the animal housing and reproductive unit in Biology department.
- **University of Baghdad in Biology department (2001-2004)**
 - Temporary lab assistant at undergraduate labs
 - Permanent employment at 2002 as lab assistant and lab administration for 2nd year and 4th year modules.
- **Volunteer summer work**
 - Sep-to date 2015**
 - Giving lectures in pathology and serology workshops for public society
 - Public engagement in non academic institutes, by giving symposiums and seminars
 - Health and hygiene inspection of some restaurants, canteens and shops in the University
 - Clinical visiting for hospitals and monitoring the practical training course giving to the newly graduated students.
 - Jul-Sep 1999**
 - Working as lab assistant in private pathological and serological Laboratory, health institute.

- **Skills**

- English (speaking, listening, writing and reading)
- IT (Word, Excel and Power point)
- GraphPad prism
- Turnitin and plagiarism detection soft ware
- End Note

- **REFEREES**

Can be supplied by request