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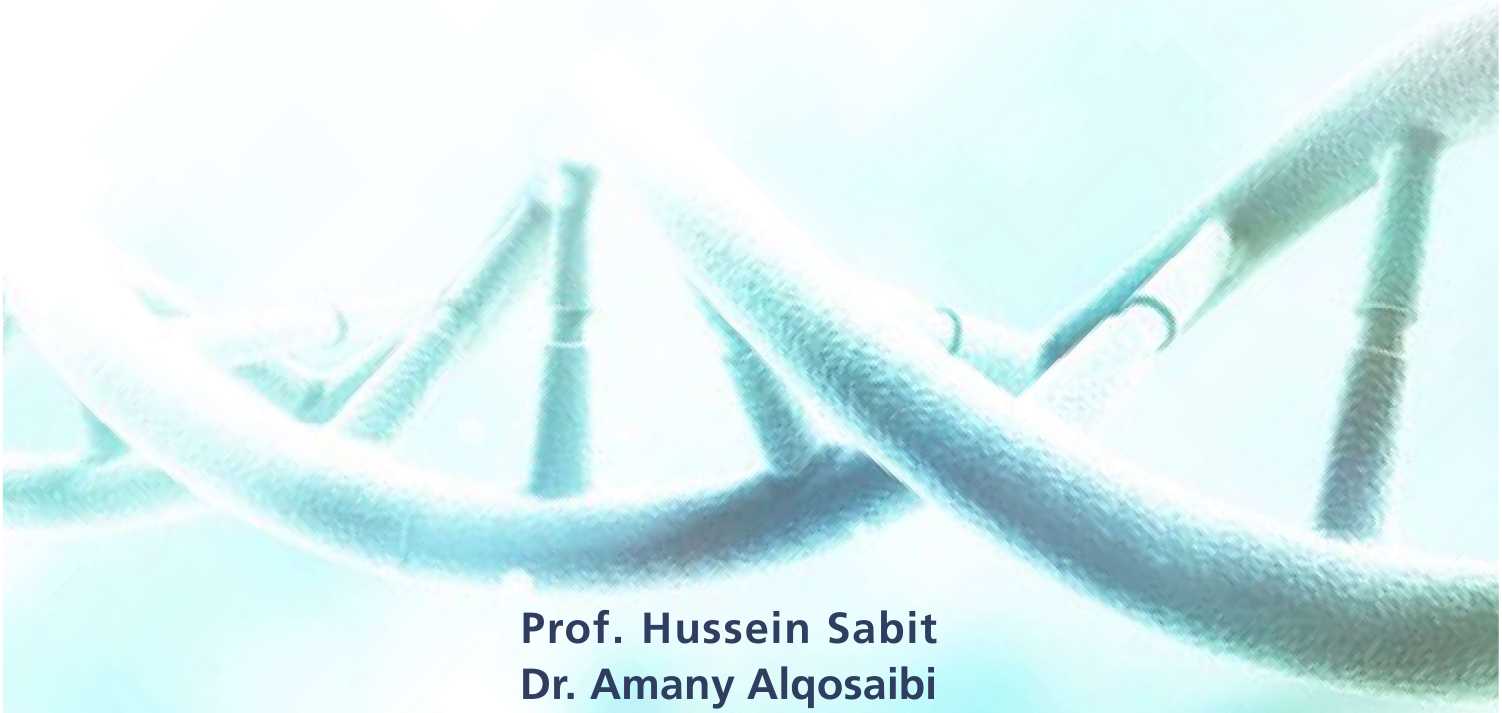
CRISPR / CAS9

Revolutionizing the biological arena



Prof. Hussein Sabit
Dr. Amany Alqosaibi

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Revolitionizing the biological arena

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Prof. Hussein Sabit

Dr. Amany Alqosaibi

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LIST OF ABBREVIATIONS

Abbreviation	Acronym
AMR	Ampicillin Resistance Gene
BGI	Beijing Genomics Institute
CAR	Chimeric Antigen
CASFISH	CRISPR/Cas9-Mediated Fluorescent in Situ Hybridization
CF	Cystic Fibrosis
CFTR	Cystic Fibrosis Transmembrane Conductance Regulator
CRISPR	Clustered Regularly Interspaced Short Palindromic Repeats
DMD	Duchenne Muscular Dystrophy
DNA	Deoxyribonucleic Acid
DSB	Double Strand Break
EBV	Epstein-Barr Virus
EGFP	Enhanced Green Fluorescent Protein
FDA	Food and Drug Administration
FISH	Fluorescence in Situ Hybridization
FSGS	Focal Segmental Glomerulosclerosis

GESTALT	Genome Editing of Synthetic Target Arrays for Lineage Tracing
GHR	Growth Hormone Receptor
GMO	Genetically Modified Organisms
HD	Huntington Disease
HDR	Homology-Directed Repair
HIV	Human Immunodeficiency Viruses
HNH	Histidine-Asparagine-Histidine
HPV	Human Papilloma Virus
HTT	Gene Encodes for Huntingtin
IHF	Integration Host Factor
IVF	In Vitro Fertilization
MGE	Mobile Genetic Element
NHEJ	Non-Homology End Joining
NIH	National Institutes of Health
PAM	Protospacer Adjacent Motif
PARP	Poly (ADP-Ribose) Polymerase
PCR	Polymerase Chain Reaction
PD	Parkinson Disease
PGD	Preimplantation Genetic Diagnosis
PKD	Polycystic Kidney Disease
REPAIR	RNA Editing for Programmable A to I Replacement
RVD	Repeat Variable Diresidue
SAHA	Suberanilohydroxamic Acid
SCID	Severe Combined Immunodeficiency

SDN	Site-Directed Nuclease
SNP	Single Nucleotide Polymorphism
TAL	Transcription Activator-Like Effector
TALEN	Transcription Activator-Like Effector Nucleases
TF	Transcription Factor
TIDE	Tracking of Indels By Decomposition
XCI	X Chromosome Inactivation
ZFN	Zinc Finger Nuclease

CRISPR/CAS9 IS THE FUTURE TECHNOLOGY THAT IS GOING TO CHANGE THE FACE OF THE BIOLOGICAL ARENA. CRISPR/CAS9 CAN BE USED IN VARIOUS FIELDS THAT INCLUDE -BUT NOT LIMITED TO- MEDICAL, AGRICULTURE, INDUSTRIAL, AND ENVIRONMENTAL APPLICATIONS. EMERGED IN THE MID-2013, THIS TECHNOLOGY ENABLES SCIENTISTS TO EASILY AND STRAIGHTFORWARDLY CUT AND PASTE GENES FROM DIFFERENT ORGANISMS, BREAKING THE BIOLOGICAL BARRIERS KNOWN FOR DECADES. MAJOR ACHIEVEMENTS HAVE BEEN INTRODUCED SO FAR, AND THE FUTURE WILL ENCOUNTER A GREAT DEAL OF OTHER HUMAN WELL-BEING-RELATED ADVANCEMENTS. ONE THE OTHER HAND, CRISPR/CAS9 TECHNOLOGY SHOULD BE HANDLED WITH MUCH CARE IN ORDER NOT TO DISRUPT THE BIOLOGICAL AND ECOLOGICAL BALANCE ON EARTH.
THIS BOOK HIGHLIGHTS THE MAIN CONCEPTS OF CRISPR TECHNOLOGY ALONG WITH ITS UNIQUE APPLICATION IN DIFFERENT FIELDS OF BIOLOGICAL SCIENCES.

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