

**DUFFY ANTIGEN RECEPTOR FOR CHEMOKINES GENE  
POLYMORPHISMS AMONG NIGERIAN PROSTATE CANCER  
PATIENTS**

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**AUGUST, 2024**

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PATIENTS**

**BY**

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**DISSERTATION SUBMITTED TO THE SCHOOL POSTGRADUATE  
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TECHNOLOGY, COVENANT UNIVERSITY, OTA, OGUN STATE,  
NIGERIA**

**AUGUST, 2024**

## **ACCEPTANCE**

This is to attest that this dissertation is accepted in partial fulfillment of the requirements for the award of a Master of Science (M.Sc) in Biochemistry in the Department of Biochemistry, College of Science and Technology, Covenant University, Ota, Ogun State, Nigeria.

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## **DECLARATION**

I, **OLUWAJEMBOLA, ABIMBOLA MARY (22PCP02387)**, declare that this research work was carried out by me under the supervision of Dr. Opeyemi C. De Campos of the Department of Biochemistry, College of Science and Technology, Covenant University, Ota, Ogun State. I attest that the dissertation has not been presented either wholly or partially for the award of any degree elsewhere. All sources of data and scholarly information used in this dissertation were duly acknowledged.

**OLUWAJEMBOLA, ABIMBOLA MARY**

**Signature and Date**

## **DEDICATION**

This work is dedicated solely to God Almighty, the giver of all good things and He who makes all things beautiful in His time.

## **CERTIFICATION**

We certify that the dissertation titled “**DUFFY ANTIGEN RECEPTOR FOR CHEMOKINES GENE POLYMORPHISMS AMONG NIGERIAN PROSTATE CANCER PATIENTS**” is an original work carried out by **OLUWAJEMBOLA ABIMBOLA MARY (22PCP02387)** in the Department of Biochemistry, College of Science and Technology, Covenant University, Ota, Ogun State, Nigeria under the supervision of Dr Opeyemi C. De Campos. We have examined and found this work acceptable as part of the requirements for the award of Masters of Science (M.Sc.) in Biochemistry.

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## ABSTRACT

Prostate cancer (PCa) accounts for roughly 1.4 million incidence cases and 357,000 deaths, remaining the most common solid tumour in men globally. Genetic variation including single nucleotide polymorphisms (SNPs) contributes to the geographic disparity in some cancers including PCa, observed among black men. The Duffy Antigen Receptor for Chemokines (DARC) or Atypical Chemokine Receptor 1 (ACKR1) gene is highly polymorphic, with different variations in the population. Studies have shown that DARC/ACKR1 gene polymorphism is associated with angiogenesis and tumor growth in some cancer types. No study has been carried out yet on this gene polymorphism in PCa. This study aims to identify genetic variations in the DARC/ACKR1 gene and their association with PCa risk. Genomic DNA obtained from the blood samples of consented 146 PCa patients and 146 age-matched healthy men were genotyped for rs12075, rs2814778, rs13962, rs3027012 and rs863002 SNPs in DARC/ACKR1 gene using TaqMan® SNP Genotyping Assays. Fisher exact test was used to analyze the association between the variables. *P-value* of  $< 0.05$  was considered statistically significant and all statistical analysis was performed using R programming language. This study showed the presence of mutant alleles in rs12075, rs13962 and rs2814778 among our study population. There was no significant association observed between the polymorphisms and PCa ( $p$ -value = 0.975, OR (95%CI) =1 (0, 39.0)). Future research that will include a larger sample size is recommended to provide insight into the association between these SNPs and PCa susceptibility.