ON THE NATURE OF THE SENSORY ARRESTINS OF THE DIPTERAN INSECTS

ANOPHELES GAMBIAE AND DROSOPHILA MELANOGASTER

By

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Professor Kendal S. Broadie
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To all the teachers, scientists, and leaders

who have encouraged and inspired me

to do my best and give it my all

in spite of the difficulties and challenges

that will always lie ahead,

specifically, Mr. Bruce Cox, biology and chemistry teacher,

La Quinta High School, Westminster, California

and

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of Microbiology and Molecular Genetics,

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<tr>
<td>7TM</td>
<td>seven transmembrane</td>
</tr>
<tr>
<td>β\textsubscript{2}AR</td>
<td>β\textsubscript{2} adrenergic receptor</td>
</tr>
<tr>
<td>AC</td>
<td>adenylyl cyclase</td>
</tr>
<tr>
<td>Arr</td>
<td>arrestin</td>
</tr>
<tr>
<td>AgArr</td>
<td>Anopheles gambiae arrestin</td>
</tr>
<tr>
<td>AgOr</td>
<td>Anopheles gambiae odorant receptor</td>
</tr>
<tr>
<td>AP</td>
<td>alkaline phosphatase</td>
</tr>
<tr>
<td>cAMP</td>
<td>cyclic adenosine monophosphate</td>
</tr>
<tr>
<td>CNG</td>
<td>cyclic nucleotide gated</td>
</tr>
<tr>
<td>CO\textsubscript{2}</td>
<td>carbon dioxide</td>
</tr>
<tr>
<td>DIG</td>
<td>digoxygenin</td>
</tr>
<tr>
<td>DmArr</td>
<td>Drosophila melanogaster arrestin</td>
</tr>
<tr>
<td>DmOr</td>
<td>Drosophila melanogaster odorant receptor</td>
</tr>
<tr>
<td>EAG</td>
<td>electroantennogram</td>
</tr>
<tr>
<td>FITC</td>
<td>Fluorescein isothiocyanate</td>
</tr>
<tr>
<td>FISH</td>
<td>fluorescence in situ hybridization</td>
</tr>
<tr>
<td>G protein</td>
<td>guanine nucleotide-binding protein</td>
</tr>
<tr>
<td>GFP</td>
<td>green fluorescent protein</td>
</tr>
<tr>
<td>GPCR</td>
<td>G protein-coupled receptor</td>
</tr>
<tr>
<td>GRK</td>
<td>G protein receptor kinase</td>
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<tr>
<td>GS</td>
<td>gene switch</td>
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<td>in situ hybridization</td>
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MAPK ................................................................. mitogen-activated protein kinase
MOE ................................................................. main olfactory epithelium
MGC ................................................................. macroglomerular complex
NH₃ ................................................................. ammonia
OBP ................................................................. odorant binding protein
ODE ................................................................. odorant degrading enzyme
OR ................................................................. odorant receptor
ORN ............................................................... odorant receptor neuron
POD ................................................................. peroxidase
PBS ................................................................. phosphate buffered saline
PLC ................................................................. phospholipase C
RT-PCR ............................................................. Real Time PCR
SH3 ................................................................. Src kinase Homology 3
SNMP .............................................................. sensory neuron membrane protein
SSR ................................................................. single sensillium recording
TARGET .......................................................... temporal and regional gene expression targeting
UTP ................................................................. uridine triphosphate
VNO ................................................................. vomeronasal organ