

## Supplementary Data

### **Advanced morphological-behavioral test platform reveals neurodevelopmental defects in embryonic zebrafish exposed to comprehensive suite of halogenated and organophosphate flame retardants**

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**1. Sample Sizes**  
**Embryonic Photomotor Responses at 24 hpf**

Abbr	Chemical	Sample size by test concentration (µM)								
		0	6.40 E-06	6.40 E-05	6.40 E-04	6.40 E-03	0.064	0.64	6.4	64
Chlorinated Phosphate Ester FRs										
BDP	bisphenol A bis-(diphenyl phosphate)	31			29	30	28	30	31	
BDPD	<i>t</i> -Butylphenyl diphenyl phosphate	31				29	30	28	29	21
EHDP	2-Ethylhexyl diphenyl phosphate	29				27	28	32	30	26
IDDP	Isodecyl diphenyl phosphate	30				32	28	29	29	23
IPP-1	Isopropylated triphenyl phosphate - 1	31				31	31	32	31	26
IPP-2	Isopropylated triphenyl phosphate - 2	31				28	30	29	28	29
IPP-3	Isopropylated triphenyl phosphate - 3	30				32	27	30	27	17
mITP	Mono isopropylated triaryl phosphate	31		32	32	30	30	29		
RDP	Resorcinol A bis-(diphenyl phosphate)	30			29	31	32	27	29	
TBP	Tributyl phosphate	30			27	30	28	31	31	
TBEP	Tris (2-butoxyethyl) phosphate	32			32	32	31	30	32	
TCP	Tricresyl phosphate	28				24	25	24	27	17
o-TCP	Tri- <i>o</i> -cresyl phosphate	31				29	30	30	30	29
TEHP	Tris (2-ethylhexyl) phosphate	31			32	31	31	30	31	
TPP	Triphenyl phosphate	32				28	28	26	30	29
DPP*	Diphenyl phosphate	31			31	30	32	31	32	
Chlorinated Phosphate Ester FRs										
BCPCP*	Bis (2-chloropropyl) 1-carboxyethyl phosphate	31				32	28	30	29	30
BCPP*	Bis(1,3-dichloro-2-propyl)phosphate	32				32	30	31	31	31
BDCPP*	Bis (2-chloropropyl) phosphate	32				24	30	26	30	29
Dechlorane	Dechlorane Plus	30			29	27	29	30	31	
MCPP*	Mono (2-chloropropyl) phosphate	31				31	31	30	31	32
TCEP	Tris (1-chloropropyl) phosphate	31				31	32	29	31	31
TCPP	Tris (2-chloroethyl) phosphate	30				32	30	32	31	29
TDCPP	Tris (1,3-dichloro-2-propyl) phosphate	28				31	30	31	31	16
PBDE FRs										
DE-71	PentaBDE commercial mixture	29				31	24	29	28	26
DE-79	OctaBDE commercial mixture	30				30	30	29	31	30
BDE-3	<i>p</i> -Bromodiphenyl ether	30				31	30	30	32	30
BDE-15	<i>p,p</i> -Dibromodiphenyl ether	28				30	29	25	29	29
BDE-47	2,2',4,4'-Tetrabromodiphenyl ether	31				28	26	28	28	28
BDE-99	2,2',4,4',5-Pentabromodiphenyl ether	30				30	30	30	28	31
BDE-100	2,2',4,4',6-Pentabromodiphenyl ether	29	26	30	29	32				
BDE-153	2,2',4,4',5,5'-Hexabromodiphenyl ether	31				29	32	30	30	30
BDE-154	2,2',4,4',5,6'-Hexabromodiphenyl ether	30	31	30	31	30				
BDE-183	2,2',3,4,4',5',6-Heptabromodiphenyl ether	31	32	31	29	31				
BDE-209	Decabromodiphenyl ether	32				32	32	30	32	31
2,4,6-TBP*	2,4,6-Tribromophenol	30			29	32	30	30	30	
3-OH-BDE-47*	3-Hydroxy-2,2',4,4'-tetraBDE	30		32	29	32	30	30		
5-OH-BDE-47*	5-Hydroxy-2,2',4,4'-tetraBDE	31		29	27	31	30	31		
6-OH-BDE-47*	6-Hydroxy-2,2',4,4'-tetraBDE	31	28	28	29	28	30			
Other Brominated FRs										
HBCD	Hexabromocyclododecane (Commercial Mix)	30			31	30	30	31	29	
TBB	2-ethylhexyl-tetrabromobenzoate	31			30	32	32	31	32	
TBBPA	3,3',5,5'-Tetrabromobisphenol A	31				32	32	31	24	#
TBBPA-DBPE	TBBPA-2,3-dibromopropyl ether	31			30	31	30	32	31	
TBPH	Bis(2-ethylhexyl)-tetrabromophthalate	32		32	29	30	32	31		

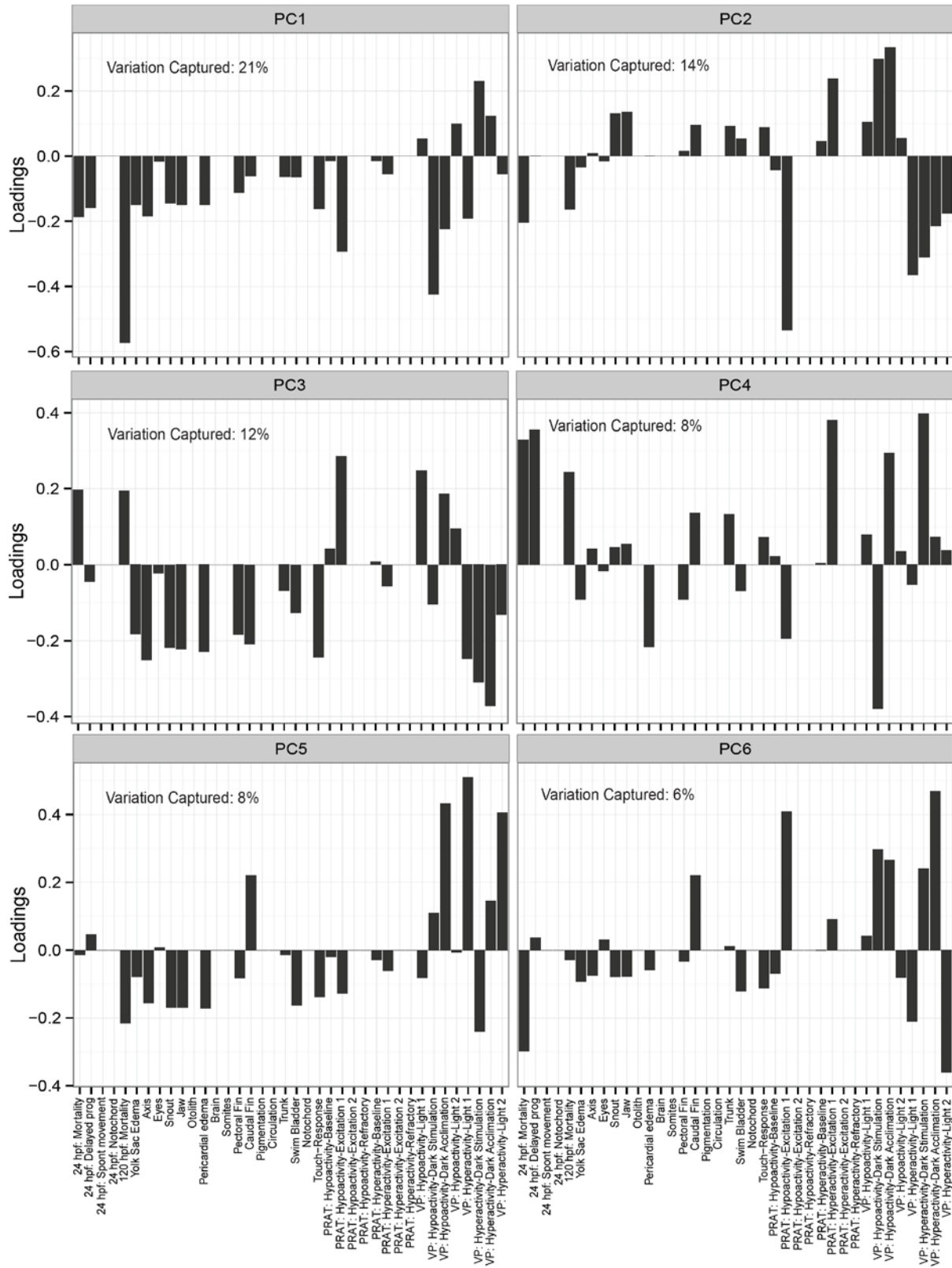
\*Sample sizes in the 24 hpf PMR assay reflect those embryos that survived with no malformations at 24 hpf.  
# indicates 100% mortality and/or morbidity.

2. **Sample Size**  
**Larval Photomotor Response Assay at 120 hpf\***

Abbr	Chemical	Sample size by test concentration (µM)								
		0	6.40 E-06	6.40 E-05	6.40 E-04	6.40 E-03	0.064	0.64	6.4	64
Chlorinated Phosphate Ester FRs										
BDP	bisphenol A bis-(diphenyl phosphate)	31			26	26	24	27	25	
BPDP	<i>t</i> -Butylphenyl diphenyl phosphate	31				28	26	28	29	#
EHDP	2-Ethylhexyl diphenyl phosphate	28				26	28	32	30	19
IDDP	Isodecyl diphenyl phosphate	30				27	27	29	28	23
IPP-1	Isopropylated triphenyl phosphate - 1	29				31	28	32	28	#
IPP-2	Isopropylated triphenyl phosphate - 2	28				26	27	25	24	6
IPP-3	Isopropylated triphenyl phosphate - 3	29				30	27	26	25	#
mITP	Mono isopropylated triaryl phosphate	31		30	30	28	27	3		
RDP	Resorcinol A bis-(diphenyl phosphate)	30				29	30	32	27	27
TBP	Tributyl phosphate	28				24	23	22	29	28
TBEP	Tris (2-butoxyethyl) phosphate	30				30	29	28	28	
TCP	Tricresyl phosphate	28					23	24	24	24
o-TCP	Tri- <i>o</i> -cresyl phosphate	28					24	28	27	28
TEHP	Tris (2-ethylhexyl) phosphate	29				28	28	30	24	24
TPP	Triphenyl phosphate	27					23	23	24	27
DPP*	Diphenyl phosphate	30				30	29	30	30	32
Chlorinated Phosphate Ester FRs										
BCPCP*	Bis (2-chloropropyl) 1-carboxyethyl phosphate	30					32	28	29	28
BCPP*	Bis(1,3-dichloro-2-propyl)phosphate	30					30	27	31	30
BDCPP*	Bis (2-chloropropyl) phosphate	31					22	27	23	28
Dechlorane	Dechlorane Plus	30				29	26	28	28	30
MCPP*	Mono (2-chloropropyl) phosphate	31					30	31	29	28
TCEP	Tris (1-chloropropyl) phosphate	31					26	30	26	31
TCPP	Tris (2-chloroethyl) phosphate	29					32	28	30	30
TDCPP	Tris (1,3-dichloro-2-propyl) phosphate	28					31	29	30	27
PBDE FRs										
DE-71	PentaBDE commercial mixture	27					31	23	28	28
DE-79	OctaBDE commercial mixture	30					29	29	29	31
BDE-3	<i>p</i> -Bromodiphenyl ether	30					29	29	29	30
BDE-15	<i>p,p</i> -Dibromodiphenyl ether	28					30	28	24	28
BDE-47	2,2',4,4'-Tetrabromodiphenyl ether	29					22	24	23	26
BDE-99	2,2',4,4',5-Pentabromodiphenyl ether	30					29	25	25	25
BDE-100	2,2',4,4',6-Pentabromodiphenyl ether	29	28	25	30	27				
BDE-153	2,2',4,4',5,5'-Hexabromodiphenyl ether	31					25	31	27	30
BDE-154	2,2',4,4',5,6'-Hexabromodiphenyl ether	31	30	29	28	28				
BDE-183	2,2',3,4,4',5',6-Heptabromodiphenyl ether	31	28	29	28	30				
BDE-209	Decabromodiphenyl ether	32					32	32	30	32
2,4,6-TBP*	2,4,6-Tribromophenol	30					26	26	24	27
3-OH-BDE-47*	3-Hydroxy-2,2',4,4'-tetraBDE	29		31	29	31	29	29		
5-OH-BDE-47*	5-Hydroxy-2,2',4,4'-tetraBDE	27		27	23	26	27	28		
6-OH-BDE-47*	6-Hydroxy-2,2',4,4'-tetraBDE	28	24	26	27	25	25			
Other Brominated FRs										
HBCD	Hexabromocyclododecane (Commercial Mix)	29				31	29	27	30	23
TBB	2-ethylhexyl-tetrabromobenzoate	31					29	30	31	30
TBBPA	3,3',5,5'-Tetrabromobisphenol A	31					29	29	27	#
TBBPA-DBPE	TBBPA-2,3-dibromopropyl ether	29				30	28	27	30	29
TBPH	Bis(2-ethylhexyl)-tetrabromophthalate	32		31	28	29	32	31		

\*Sample sizes in the 120 hpf PMR assay reflect larvae that survived with no malformations detected at either 24 hpf or 120 hpf. # indicates 100% mortality and/or morbidity.

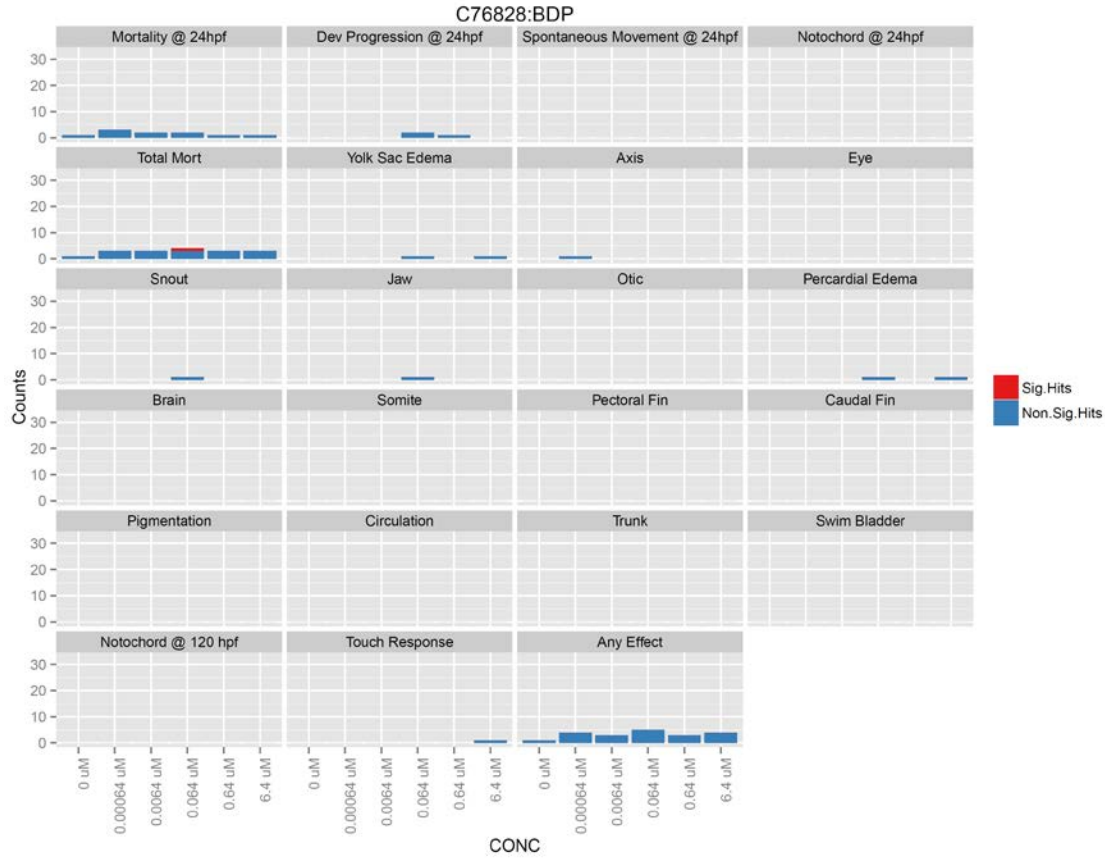
### 3. PCA Loadings



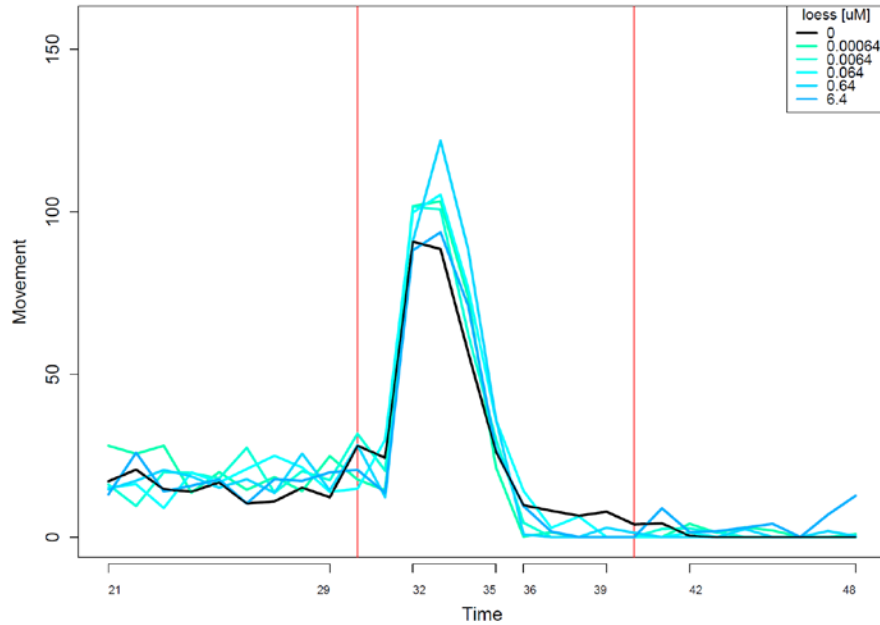
#### 4. ARYL PHOSPHATE ESTER (APE) FLAME RETARDANTS

##### Bisphenol A bis-(diphenyl phosphate) (BDP)

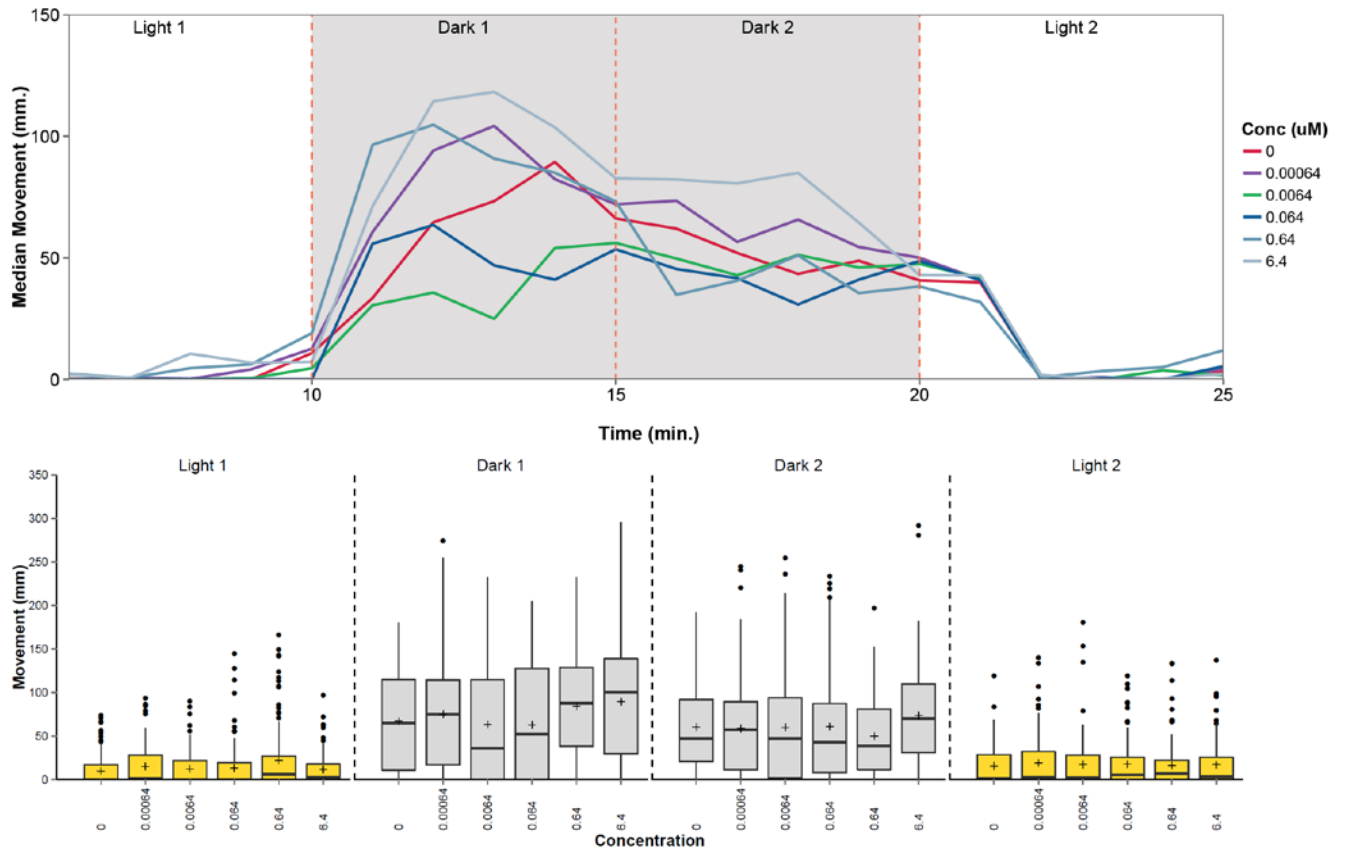
##### *BDP: Zebrafish Mortality and Malformations at 24 and 120 hpf*



##### *BDP: Zebrafish embryo PRAT results at 24 hpf*

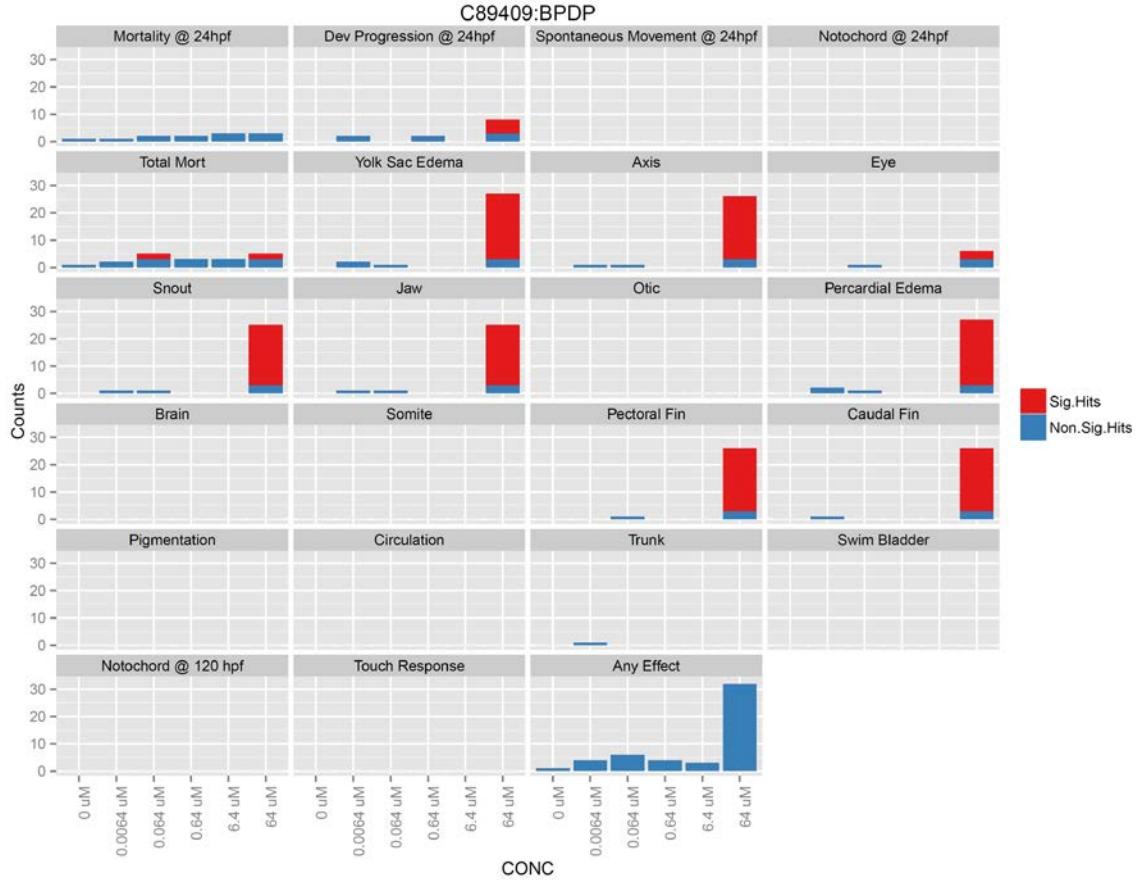


**BDP: Zebrafish larvae PMR assay results at 120 hpf**

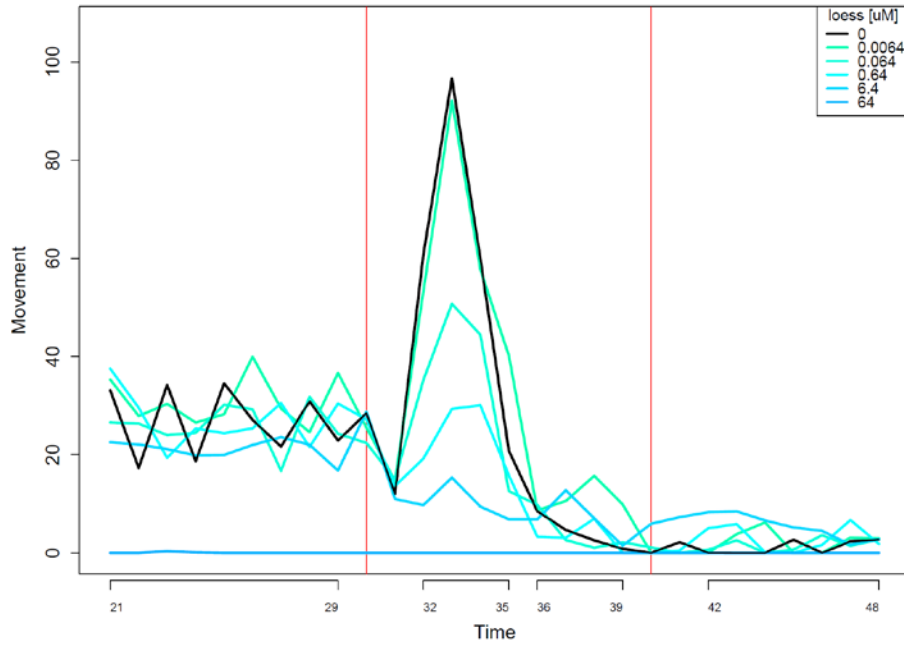


**t-Butylphenyl diphenyl phosphate (BPDP)**

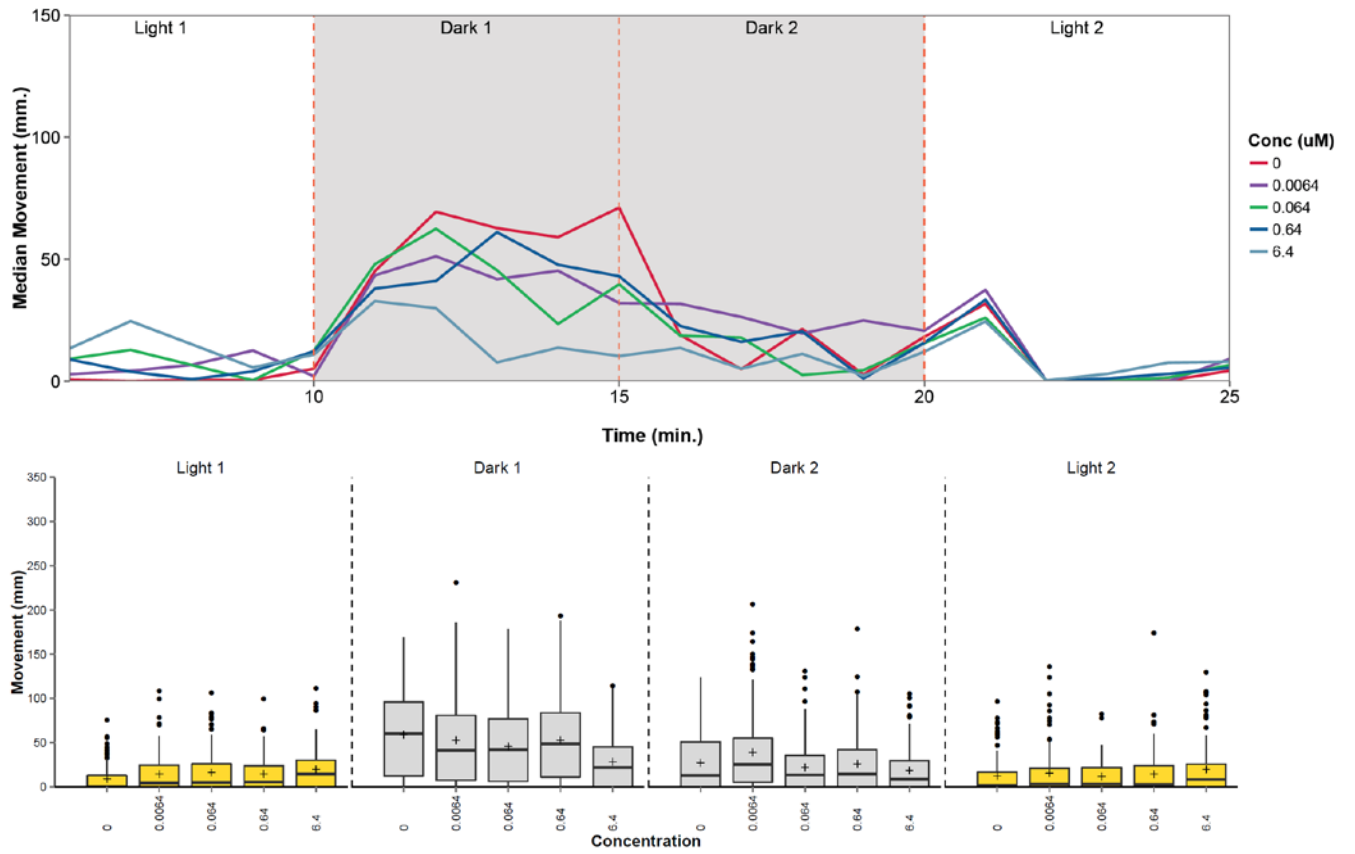
***BPDP: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***BPDP: Zebrafish embryo PRAT results at 24 hpf***



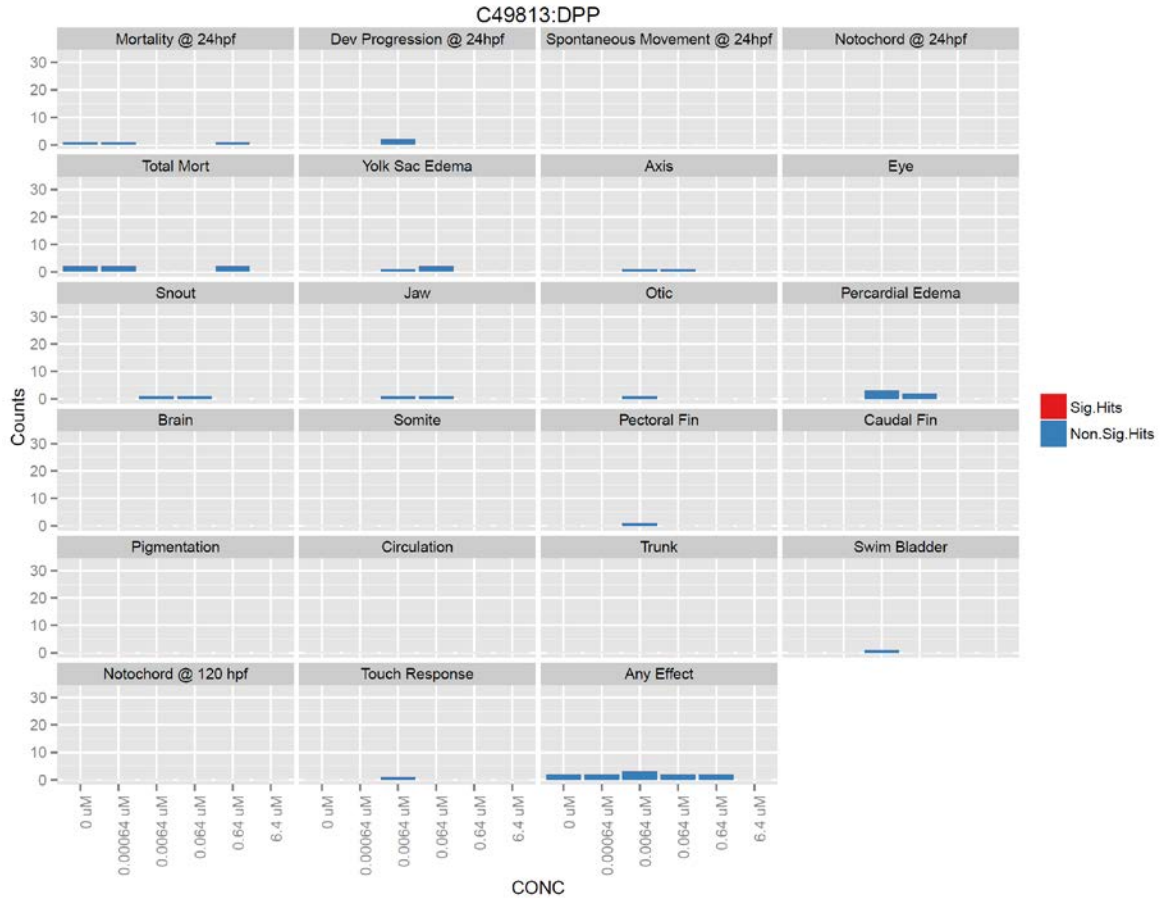
***BPDP: Zebrafish larvae PMR assay results at 120 hpf***



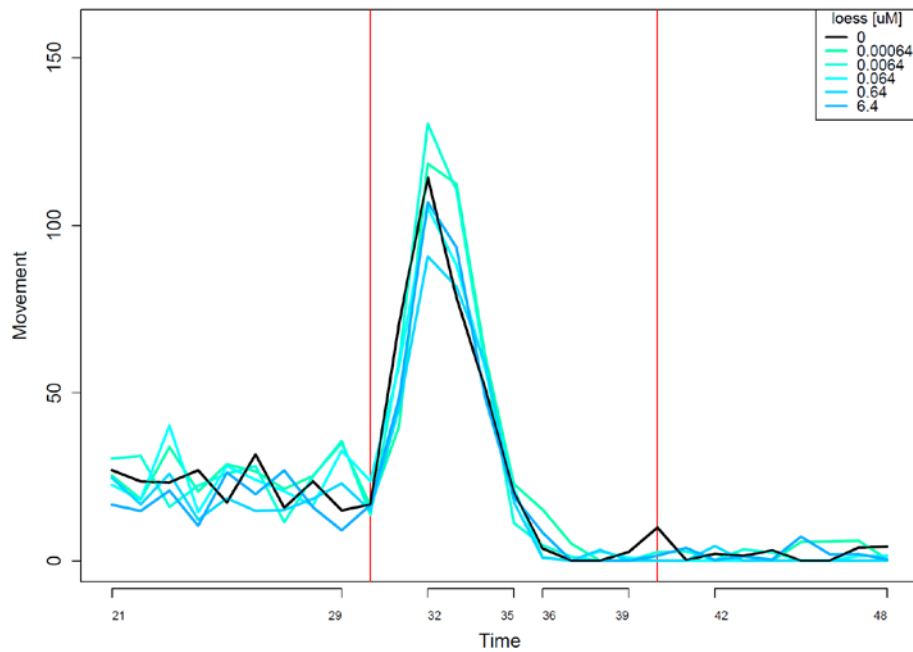


**Diphenyl phosphate (DPP)**

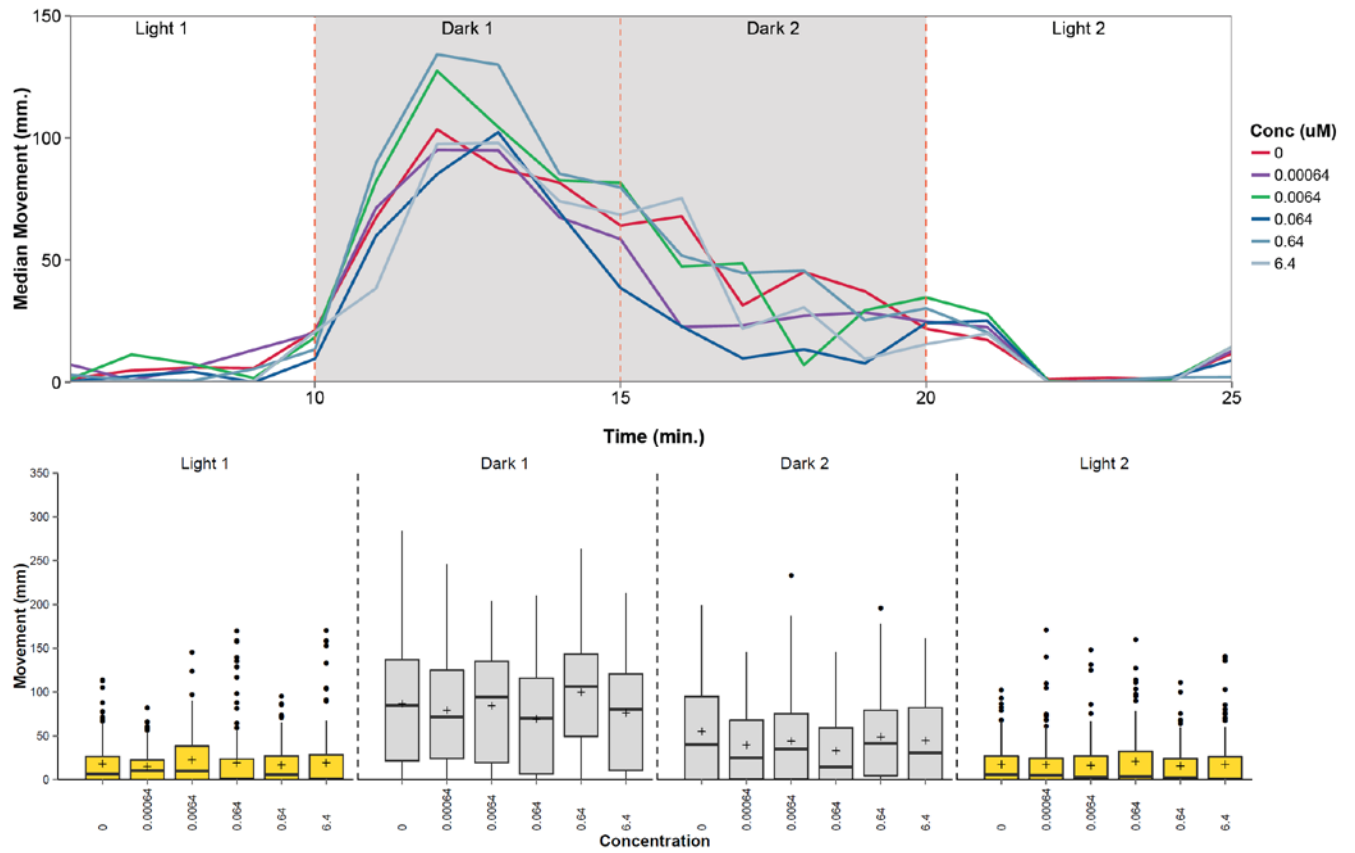
***DPP: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***DPP: Zebrafish embryo PRAT results at 24 hpf***

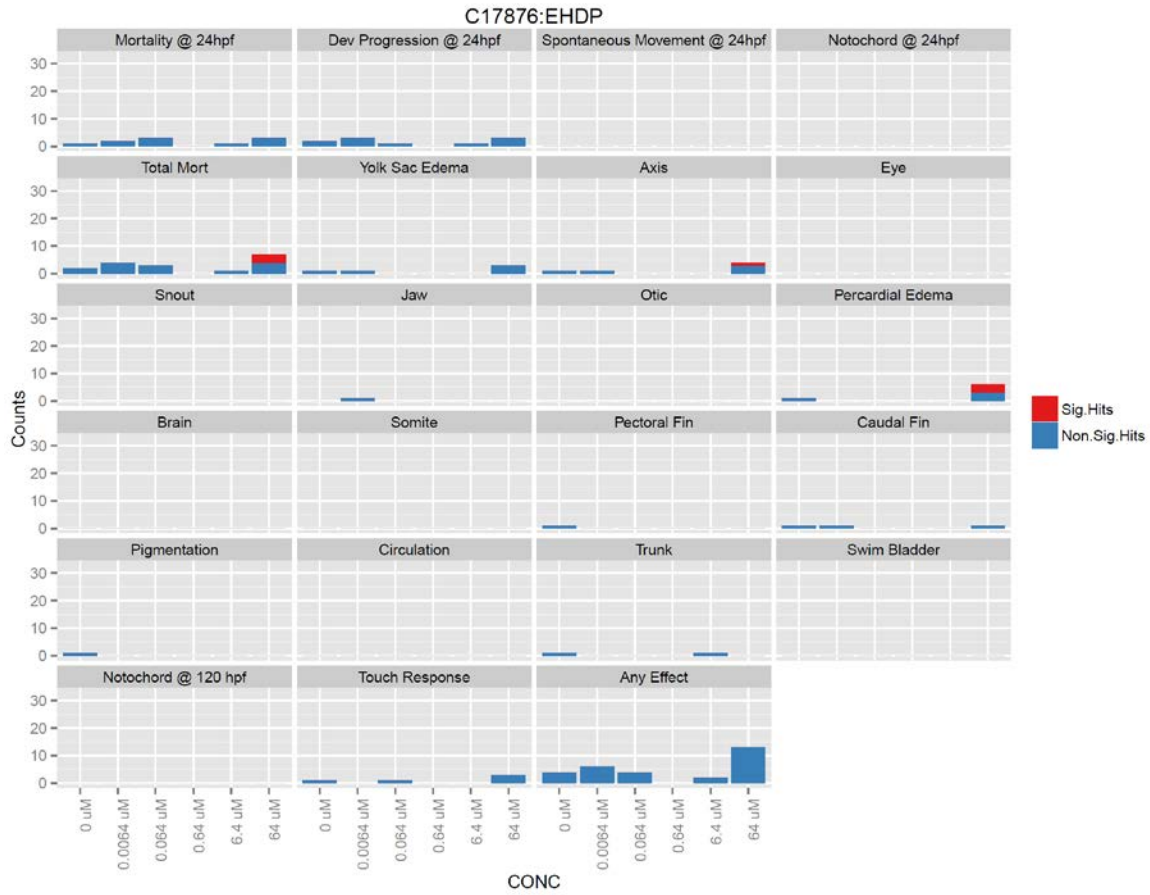


*DPP: Zebrafish larvae PMR assay results at 120 hpf*

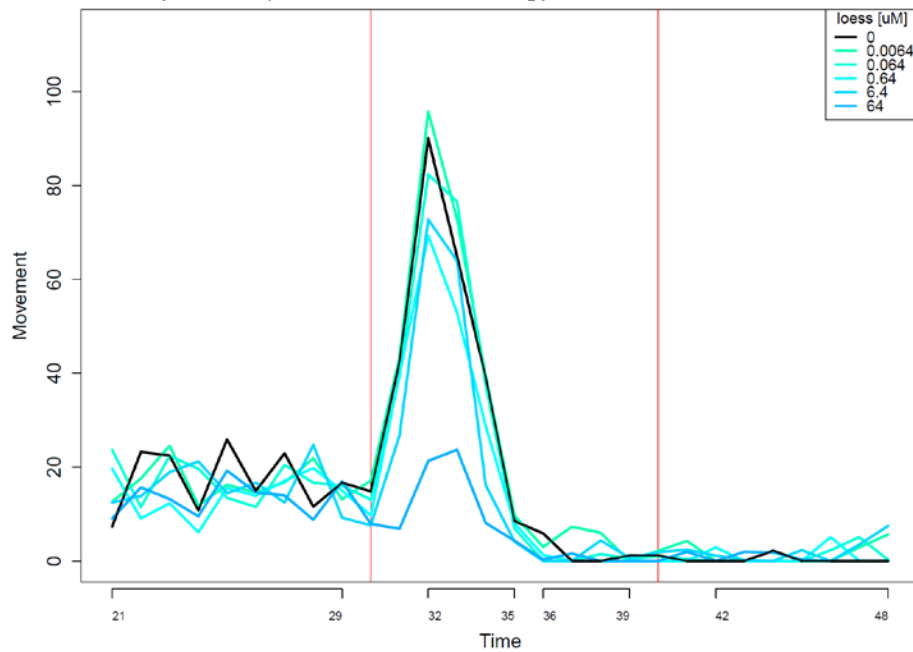


**2-Ethylhexyl diphenyl phosphate (EHDP)**

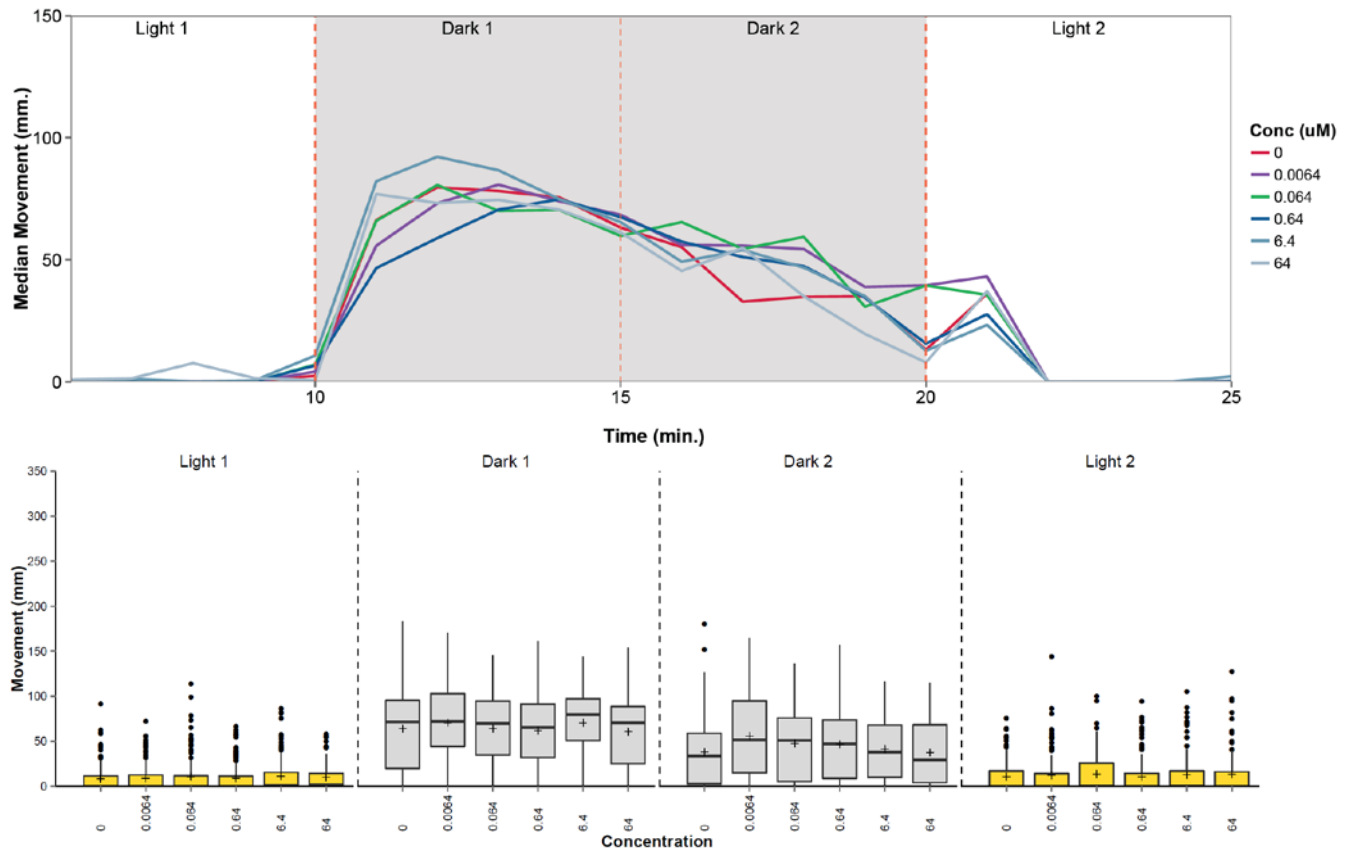
***EHDP: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***EHDP: Zebrafish embryo PRAT results at 24 hpf***



*EHDP: Zebrafish larvae PMR assay results at 120 hpf*

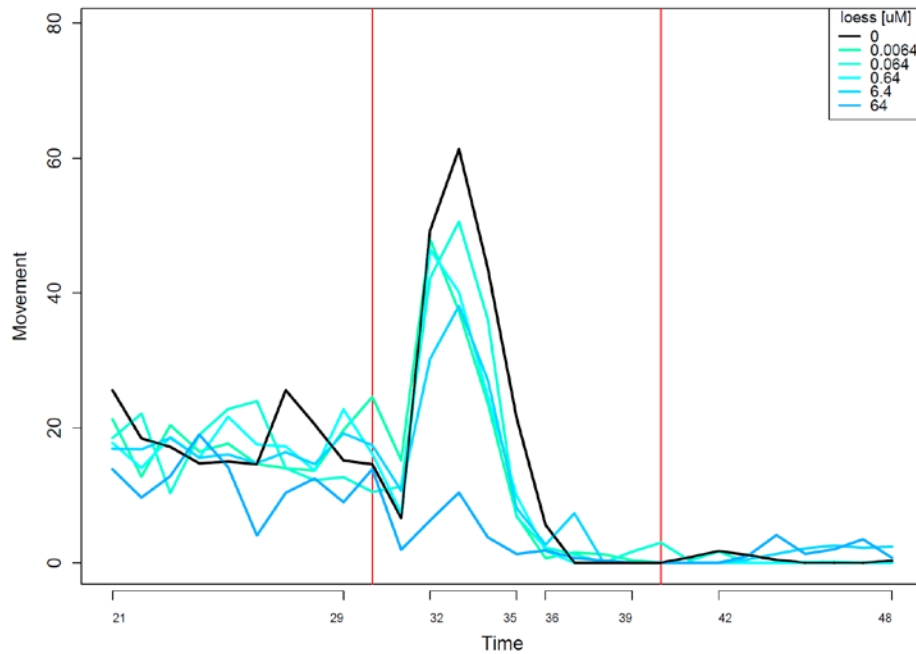


**Isodecyl diphenyl phosphate (IDDP)**

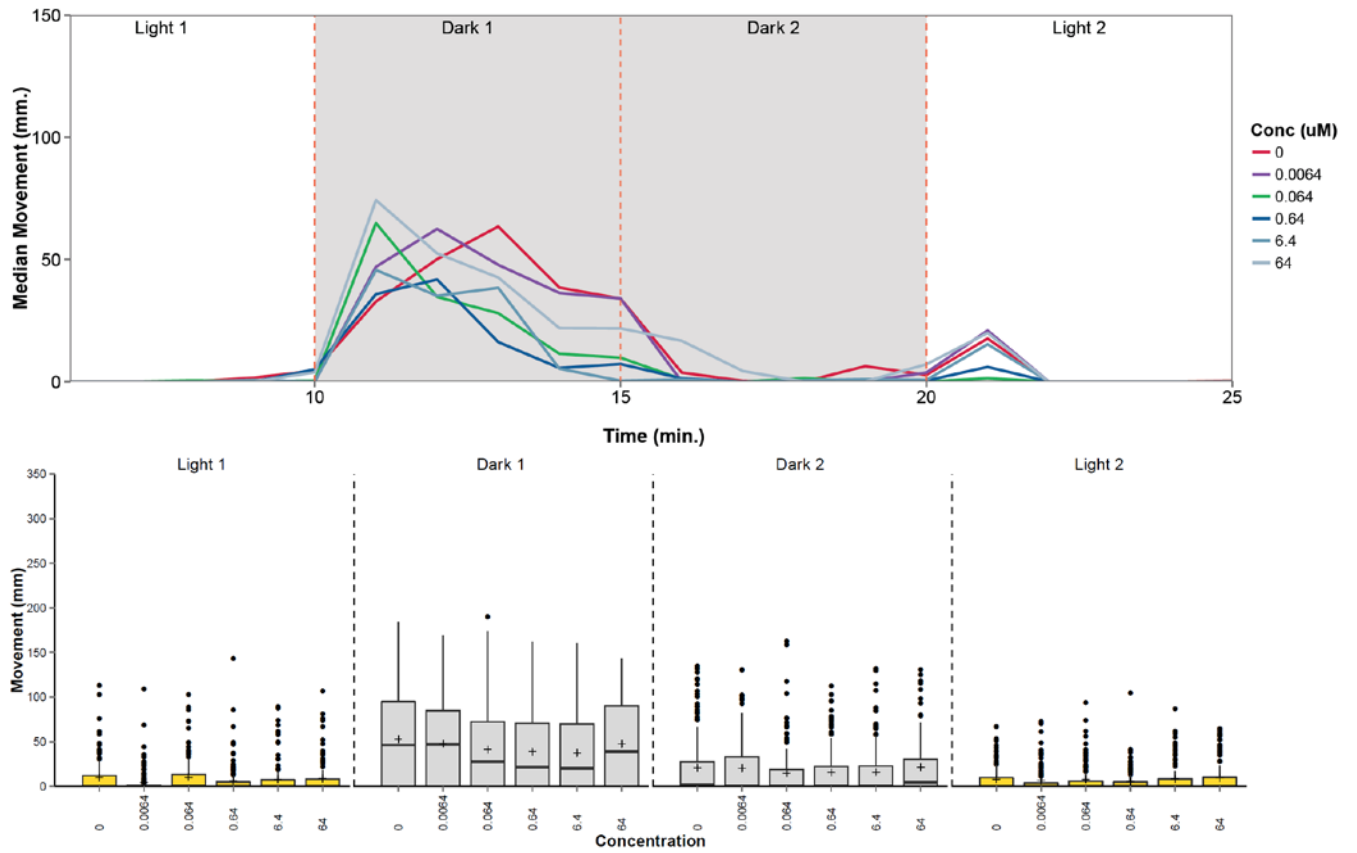
***IDDP: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***IDDP: Zebrafish embryo PRAT results at 24 hpf***

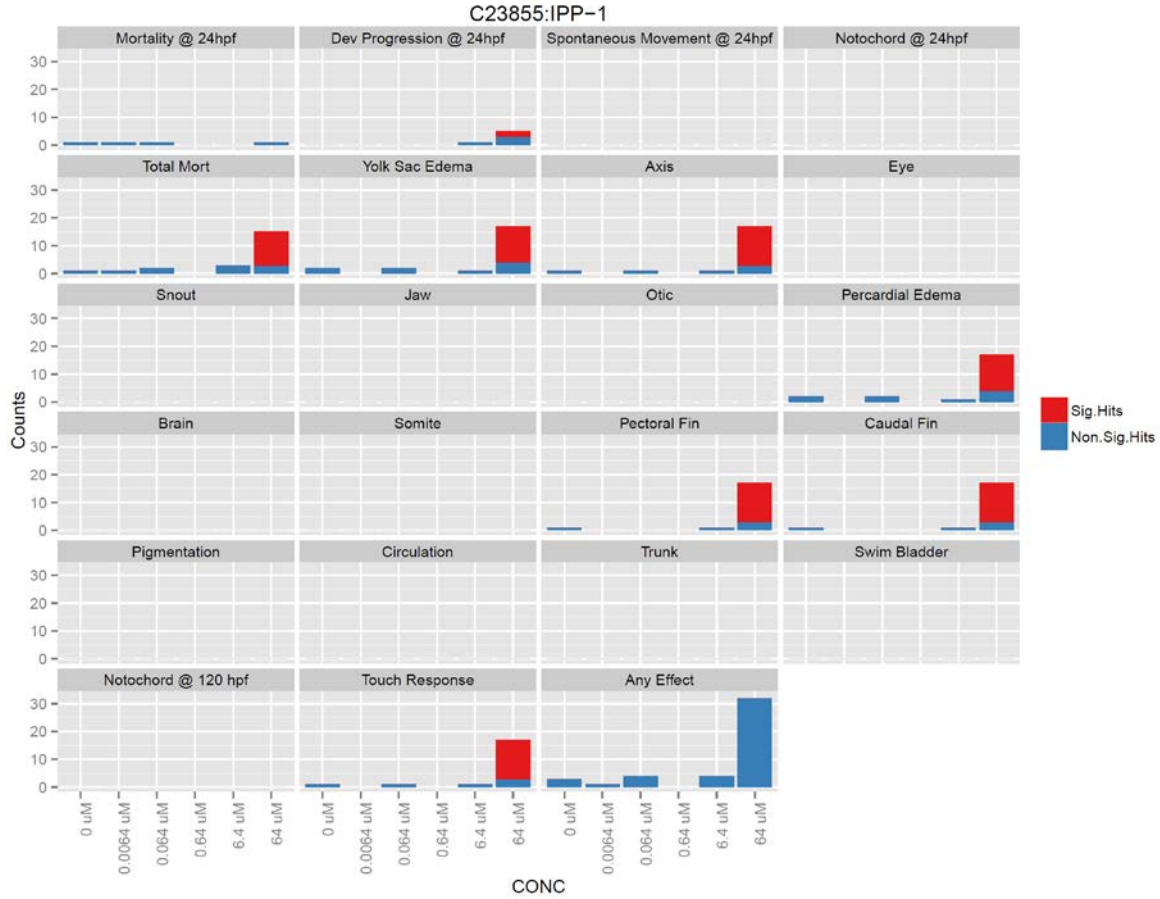


*IDDP: Zebrafish larvae PMR assay results at 120 hpf*

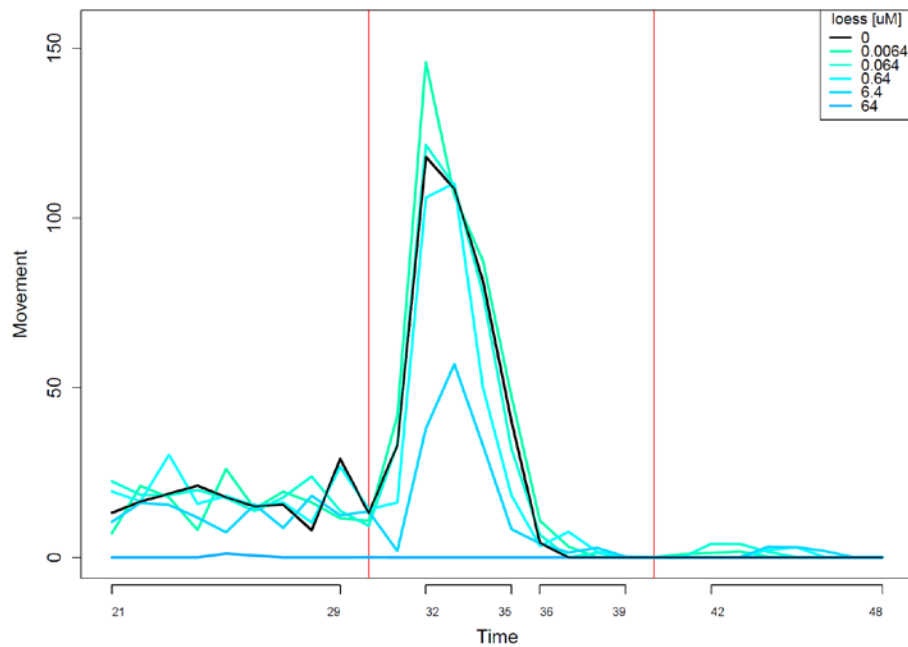


**Isopropylated triphenyl phosphate-1 (IPP-1)**

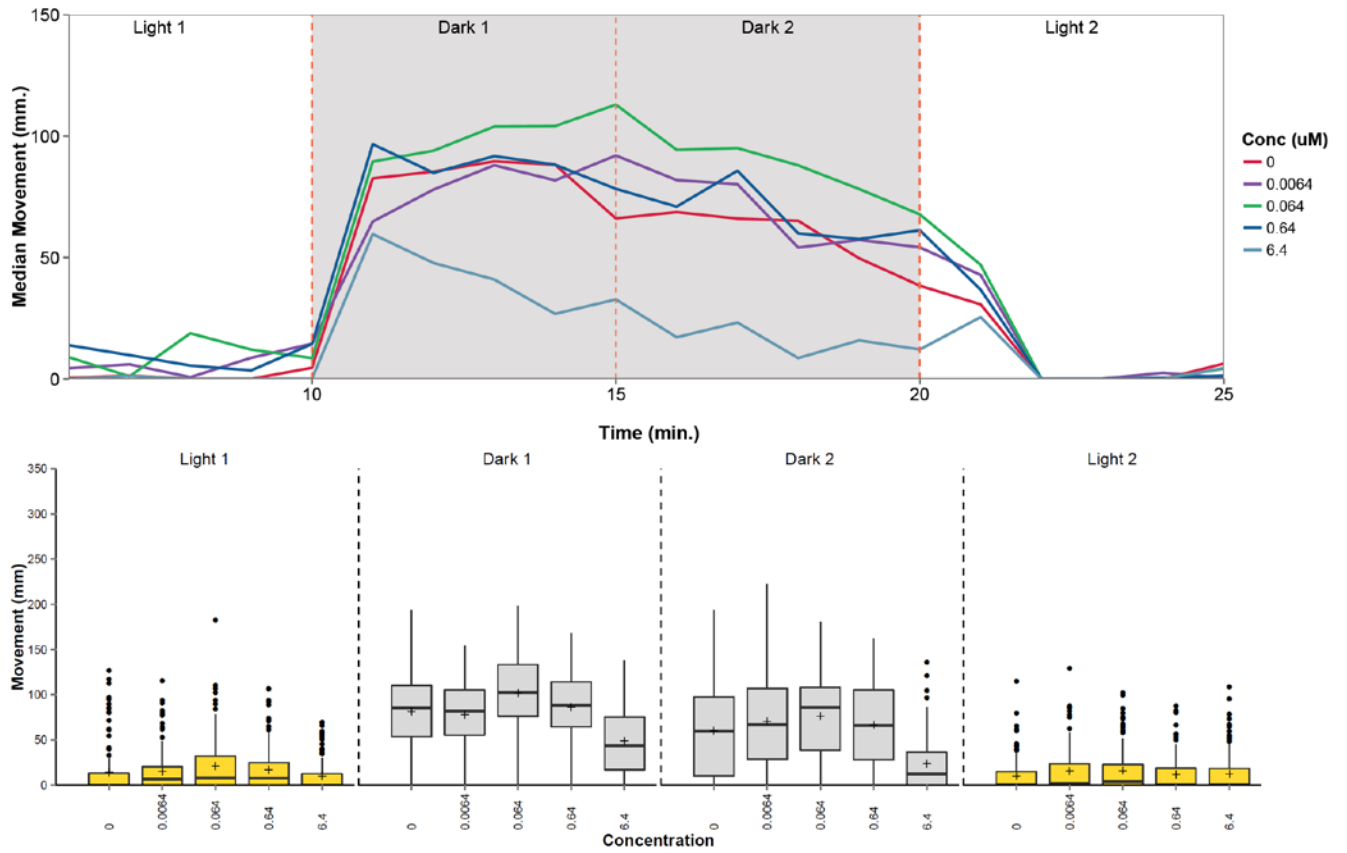
***IPP-1: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***IPP-1: Zebrafish embryo PRAT results at 24 hpf***



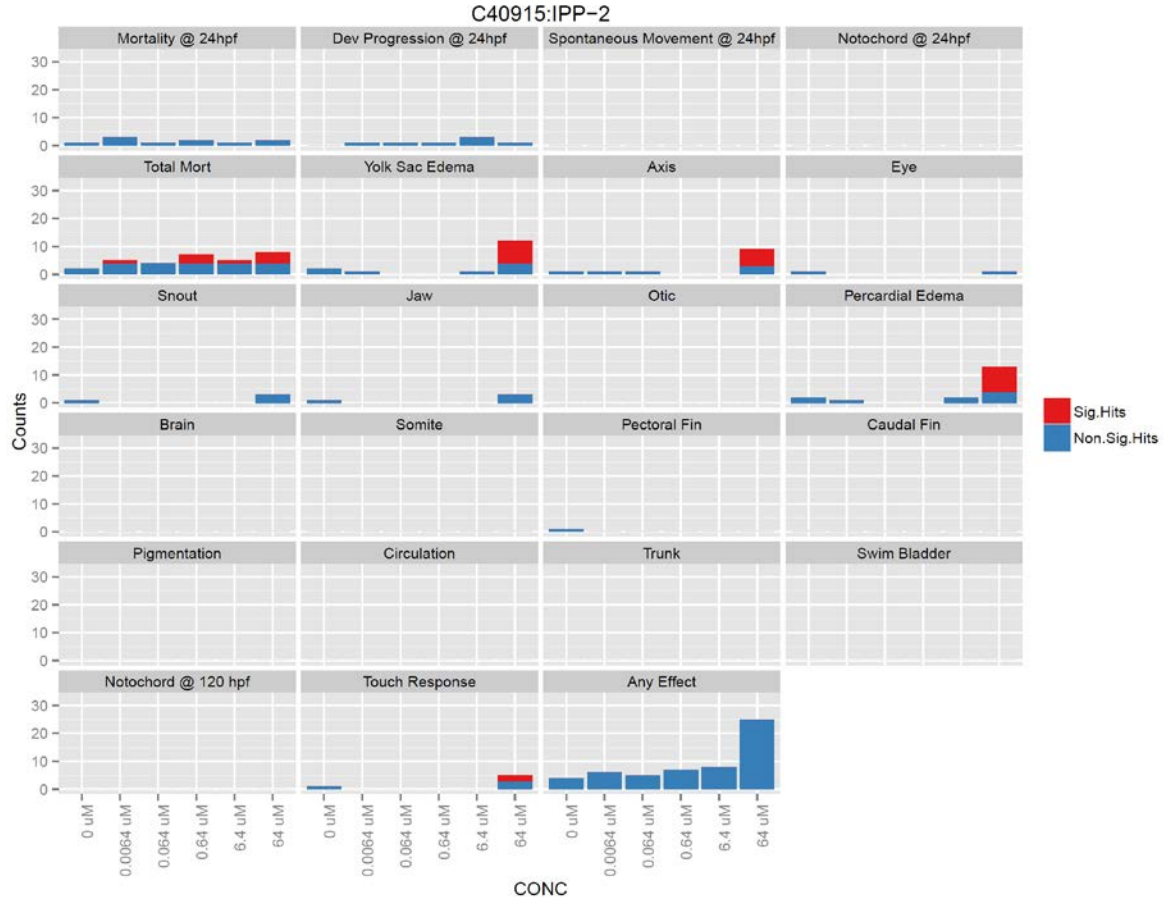
*IPP-1: Zebrafish larvae PMR assay results at 120 hpf*



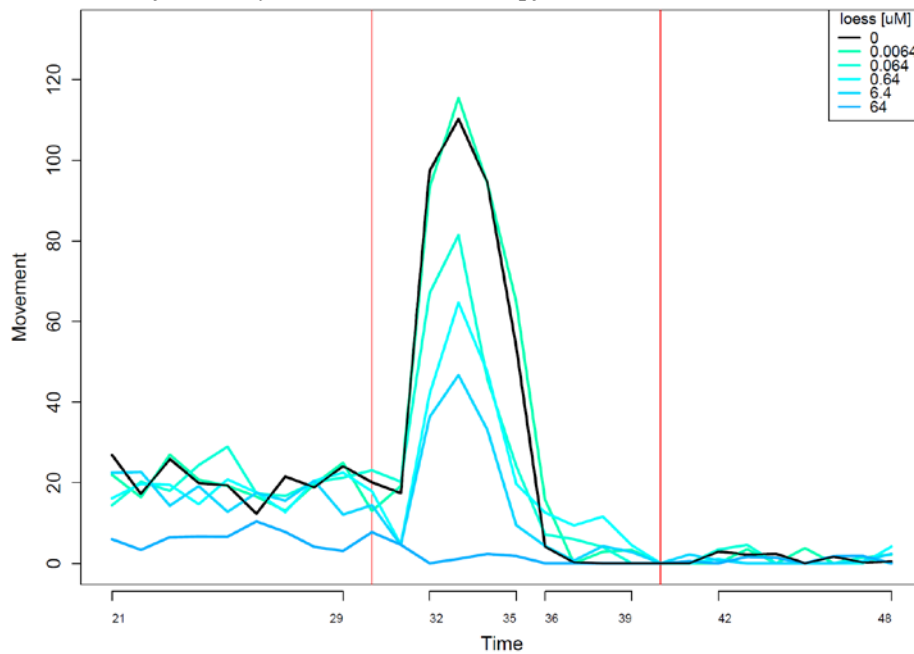


**Isopropylated triphenyl phosphate-2 (IPP-2)**

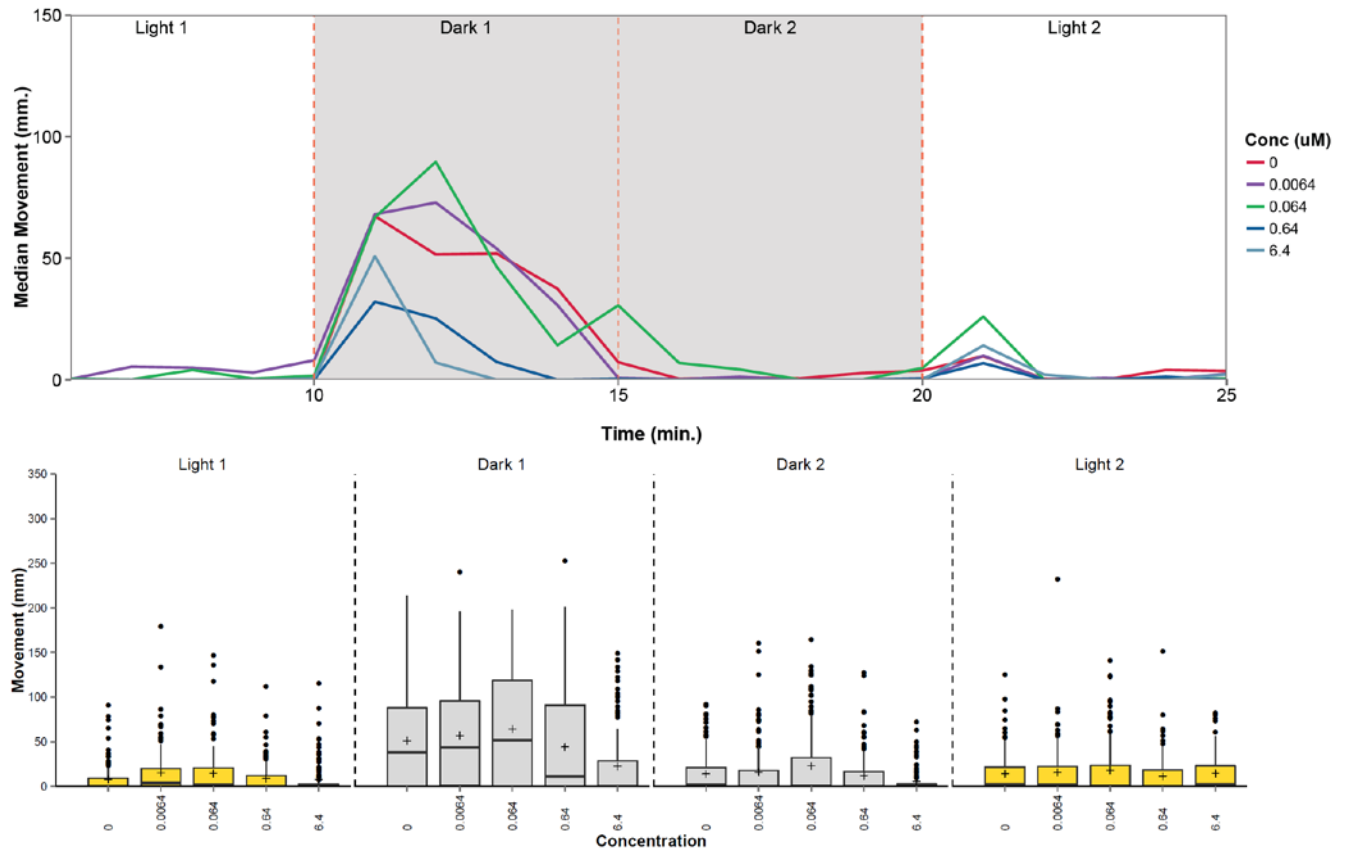
***IPP-2: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***IPP-2: Zebrafish embryo PRAT results at 24 hpf***

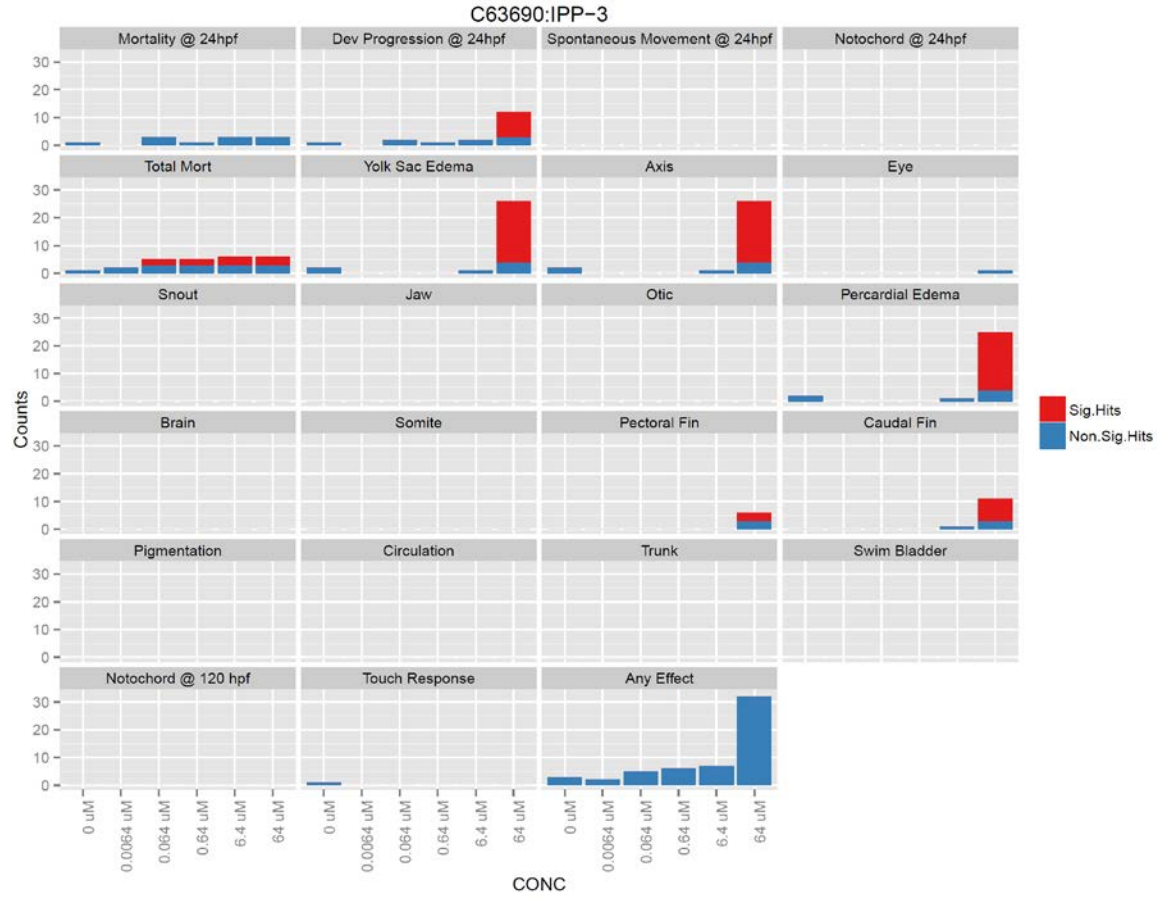


*IPP-2: Zebrafish larvae PMR assay results at 120 hpf*

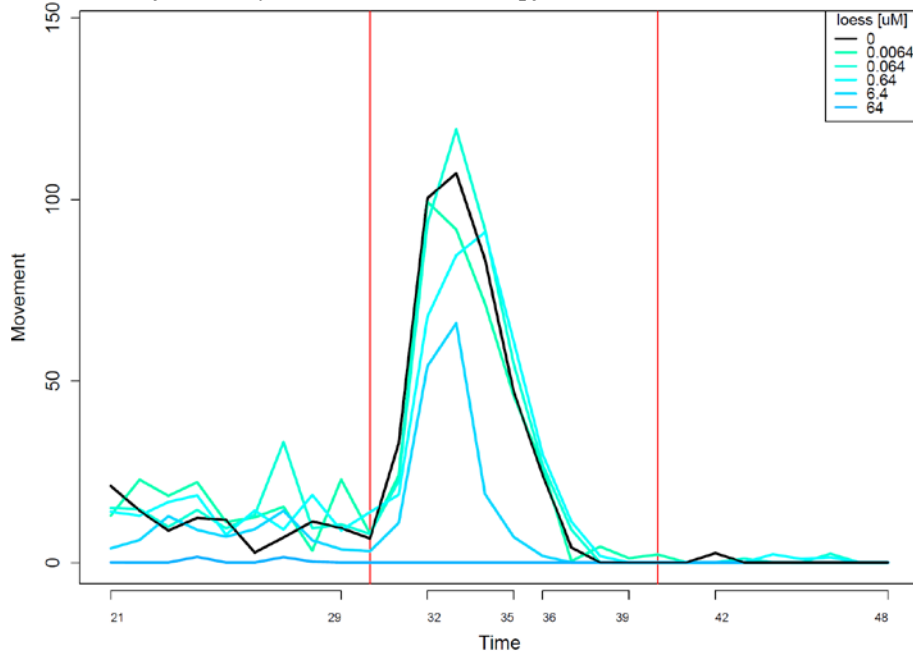


**Isopropylated triphenyl phosphate-3 (IPP-3)**

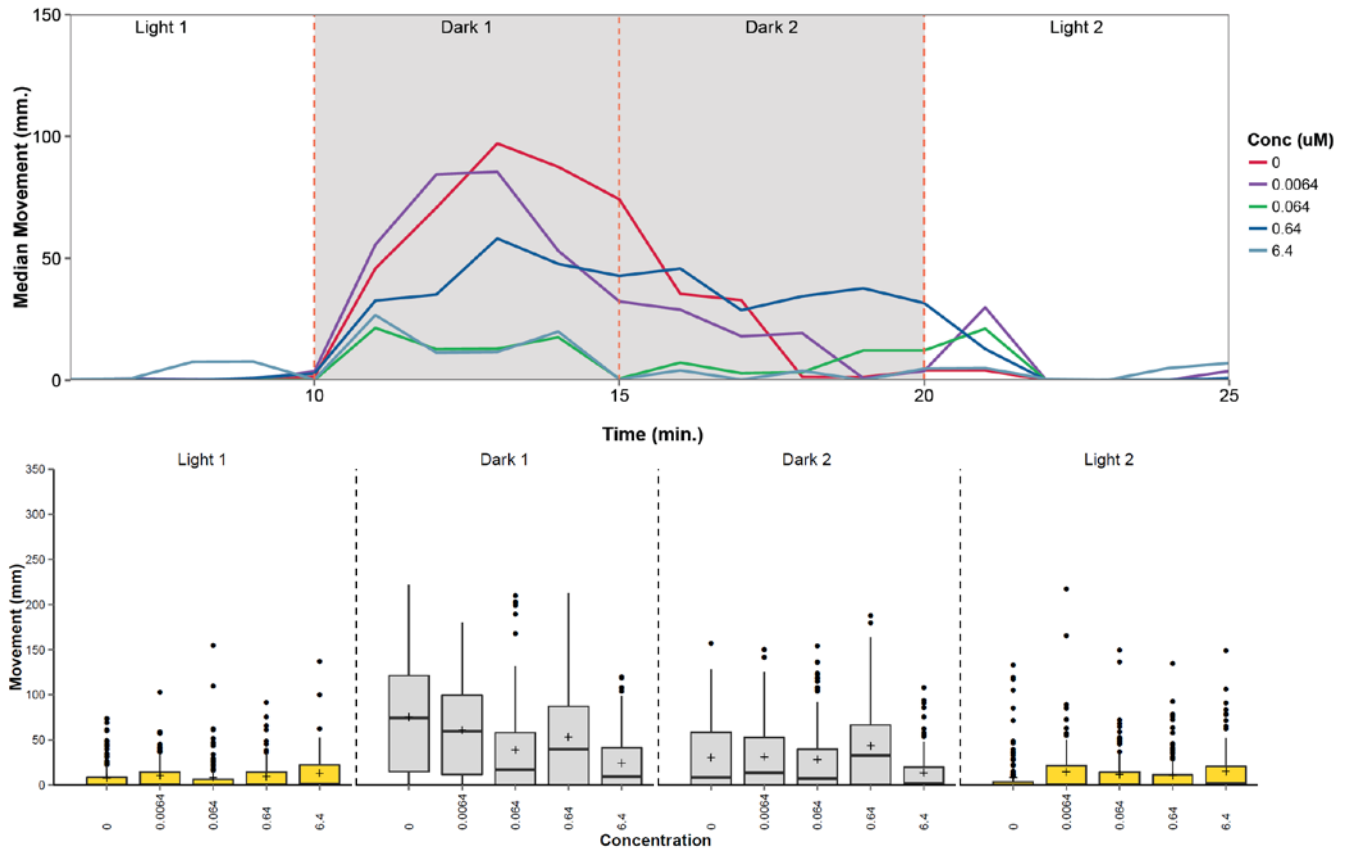
***IPP-3: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***IPP-3: Zebrafish embryo PRAT results at 24 hpf***

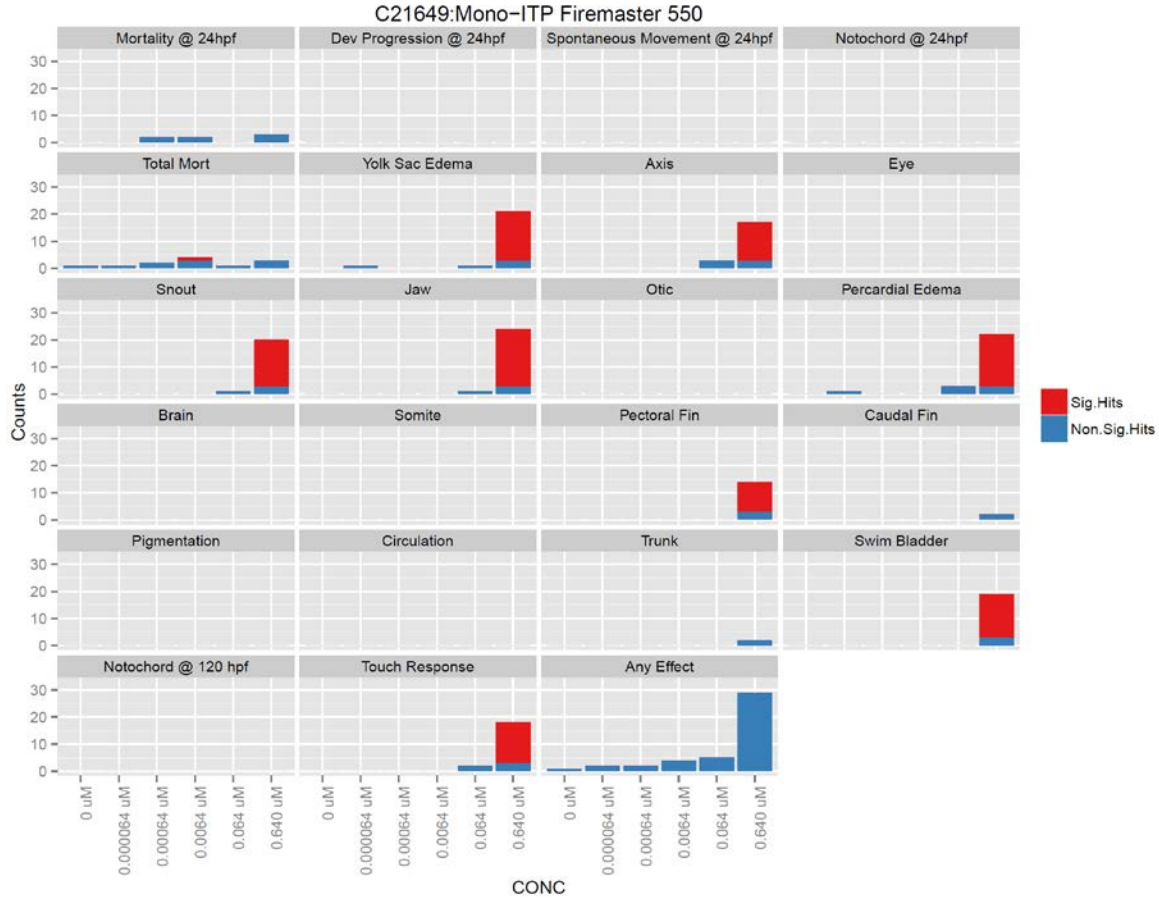


**IPP-3: Zebrafish larvae PMR assay results at 120 hpf**

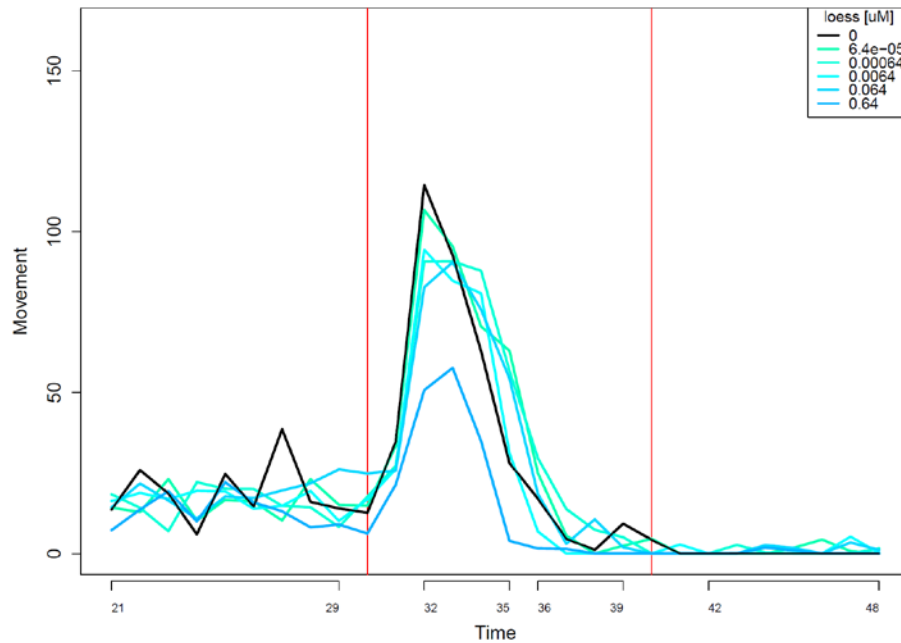


**Mono-substituted isopropylated triaryl phosphate (ortho-, meta, para mix) (mITP)**

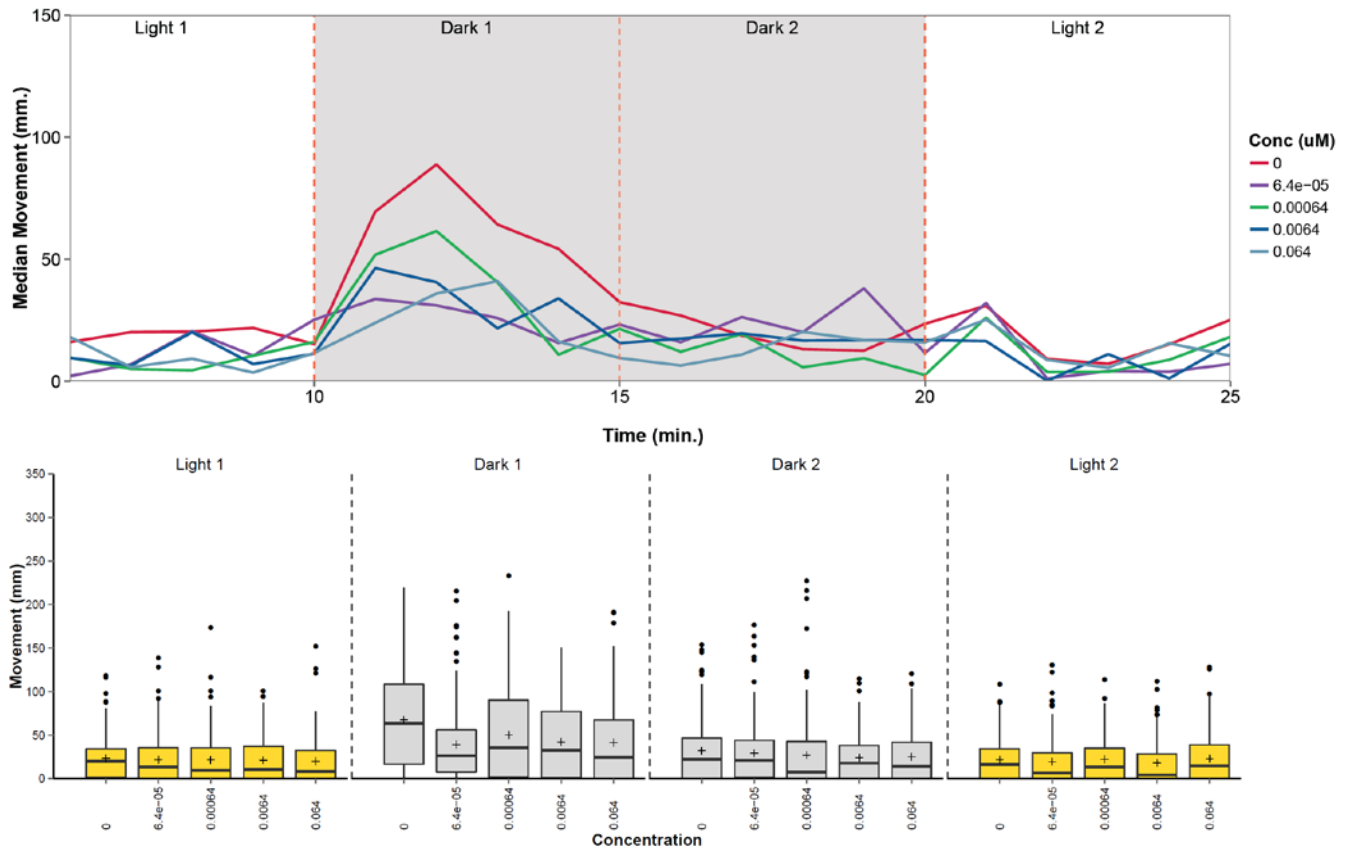
***mITP: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***mITP: Zebrafish embryo PRAT results at 24 hpf***

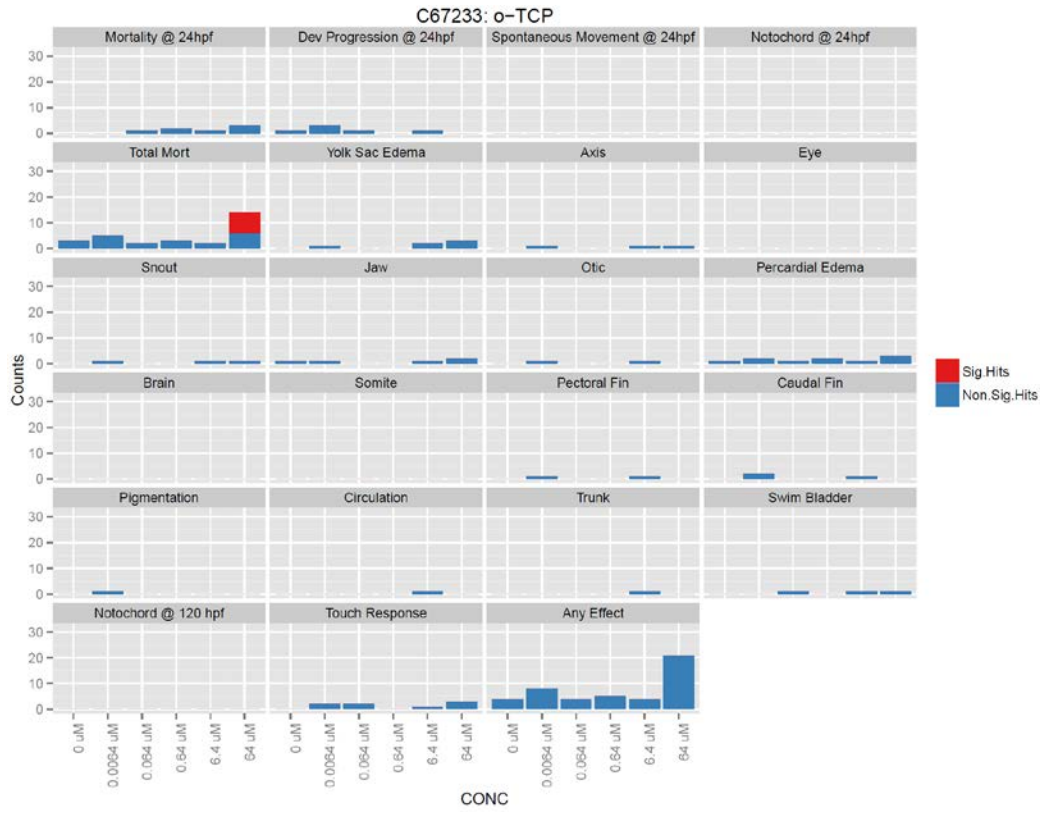


*mITP: Zebrafish larvae PMR assay results at 120 hpf*

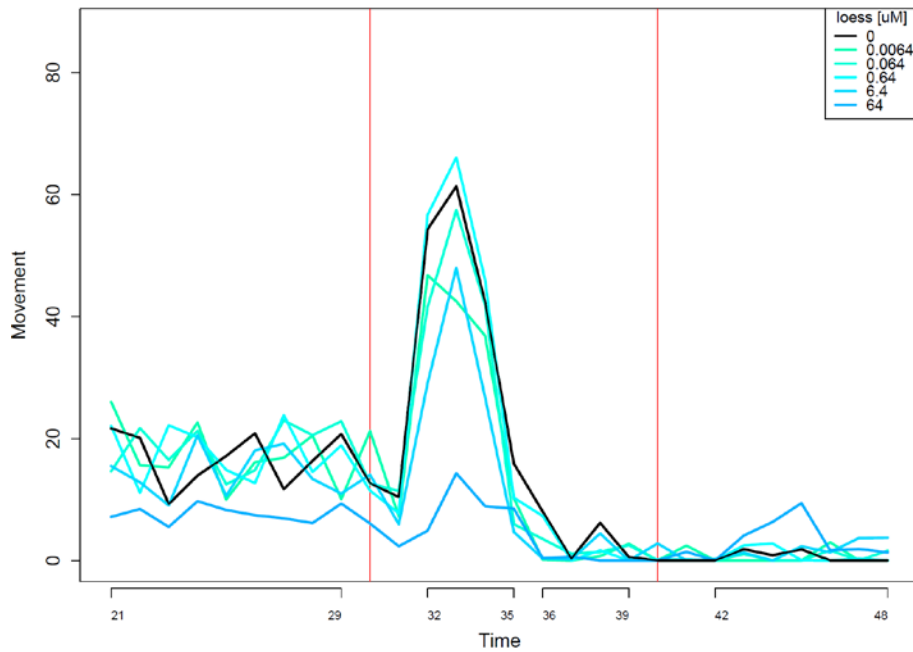


**Tri-*o*-cresyl phosphate (o-TCP)**

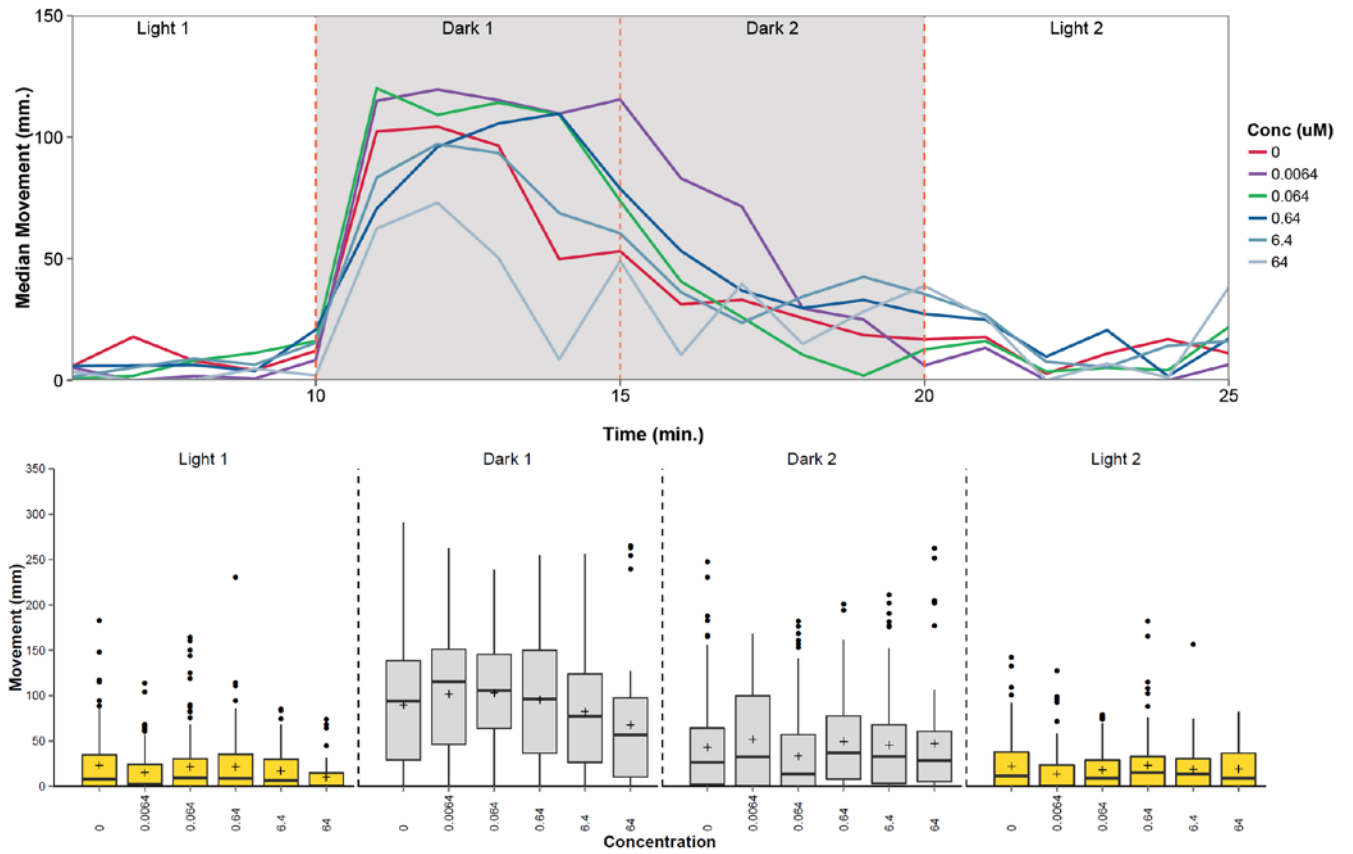
***o*-TCP: Zebrafish Mortality and Malformations at 24 and 120 hpf**



***o*-TCP: Zebrafish embryo PRAT results at 24 hpf**



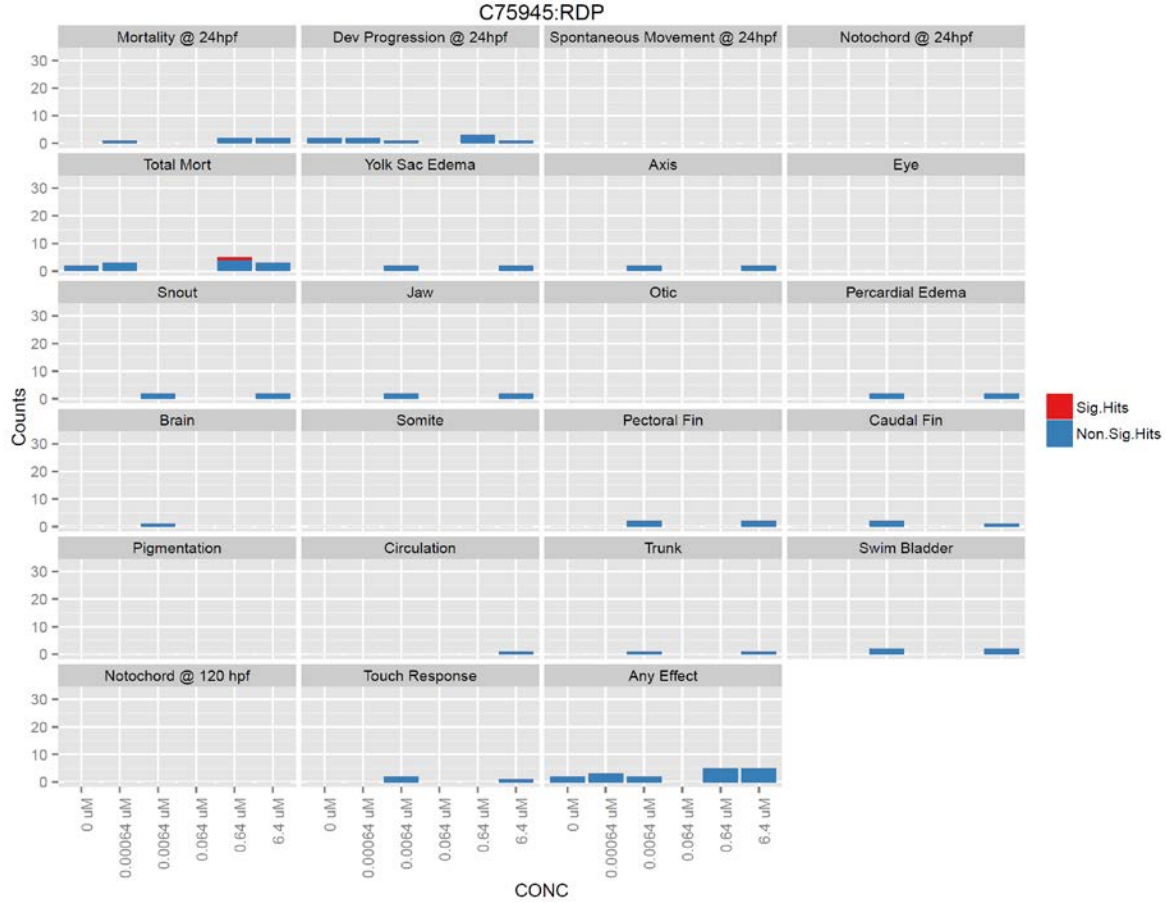
*o*-TCP: Zebrafish larvae PMR assay results at 120 hpf



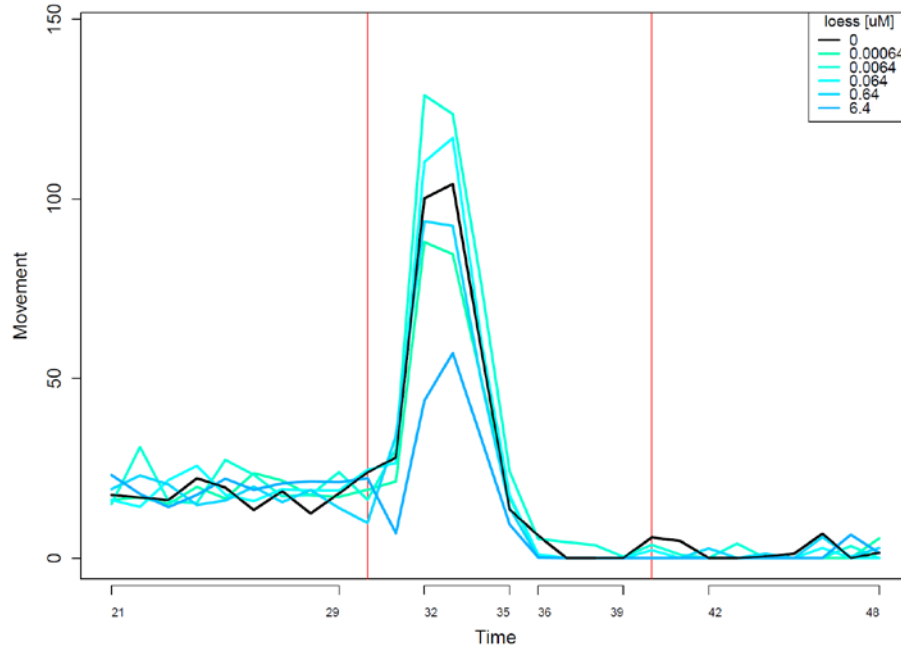


**Resorcinol A bis-(diphenyl phosphate) (RDP)**

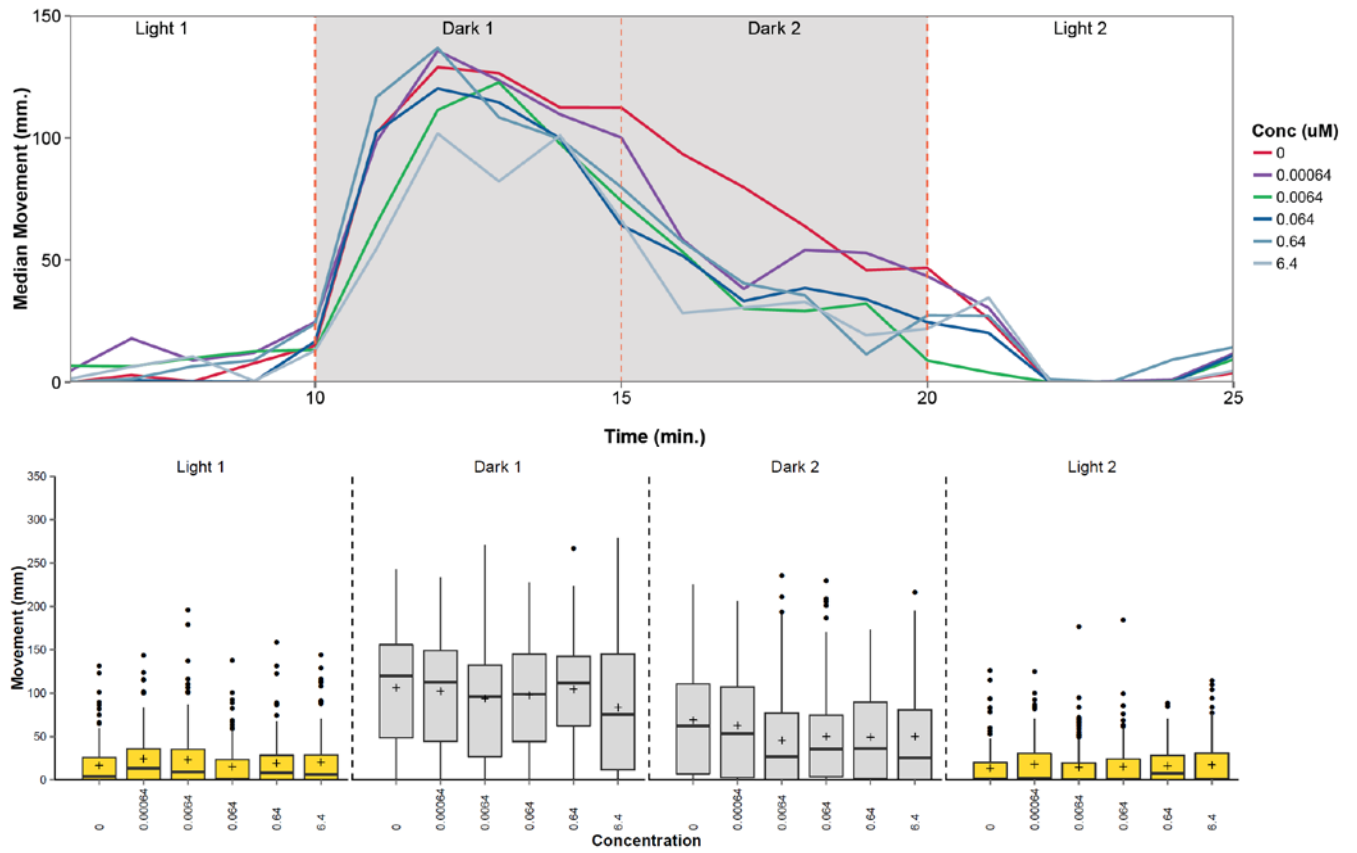
***RDP: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***RDP: Zebrafish embryo PRAT results at 24 hpf***

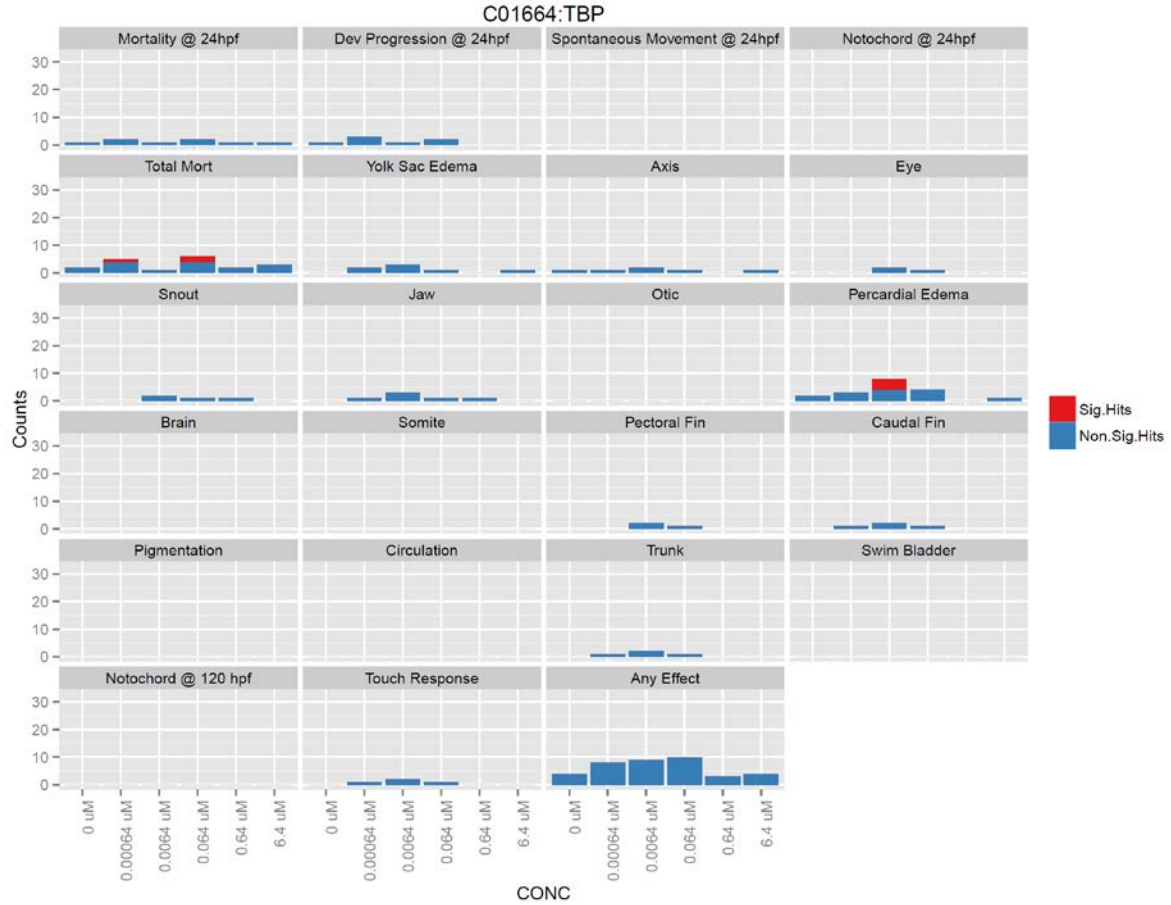


**RDP: Zebrafish larvae PMR assay results at 120 hpf**

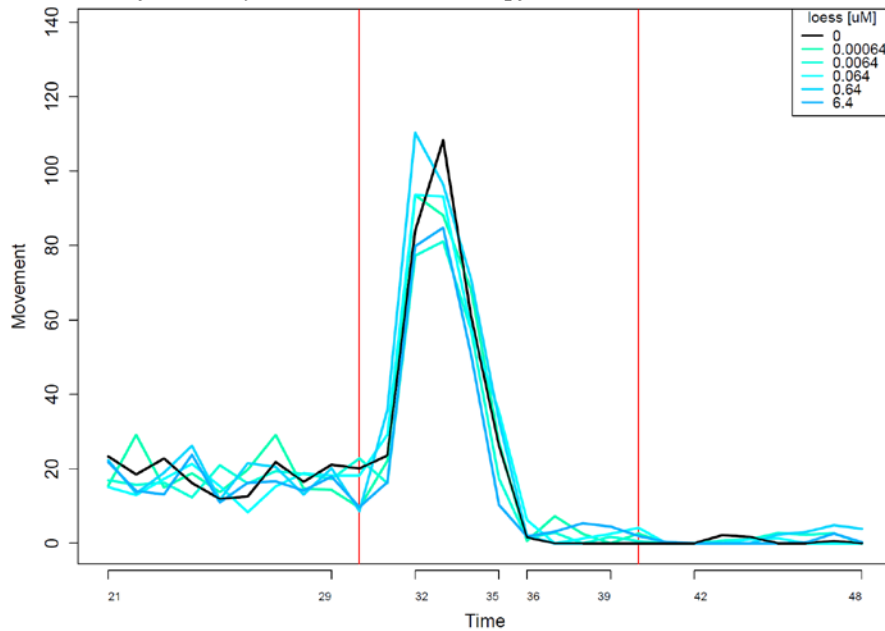


**Tributyl phosphate (TBP)**

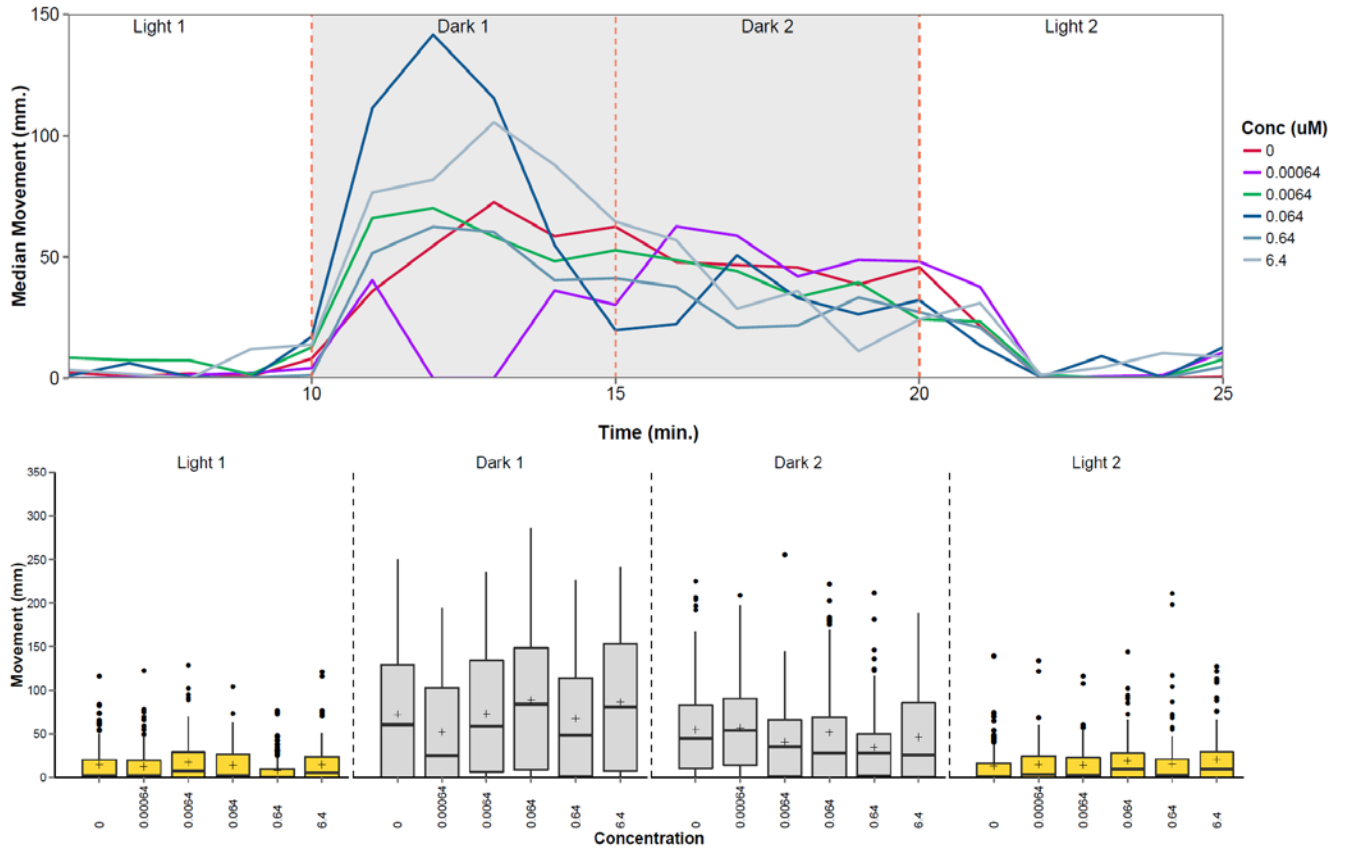
**TBP: Zebrafish Mortality and Malformations at 24 and 120 hpf**



**TBP: Zebrafish embryo PRAT results at 24 hpf**

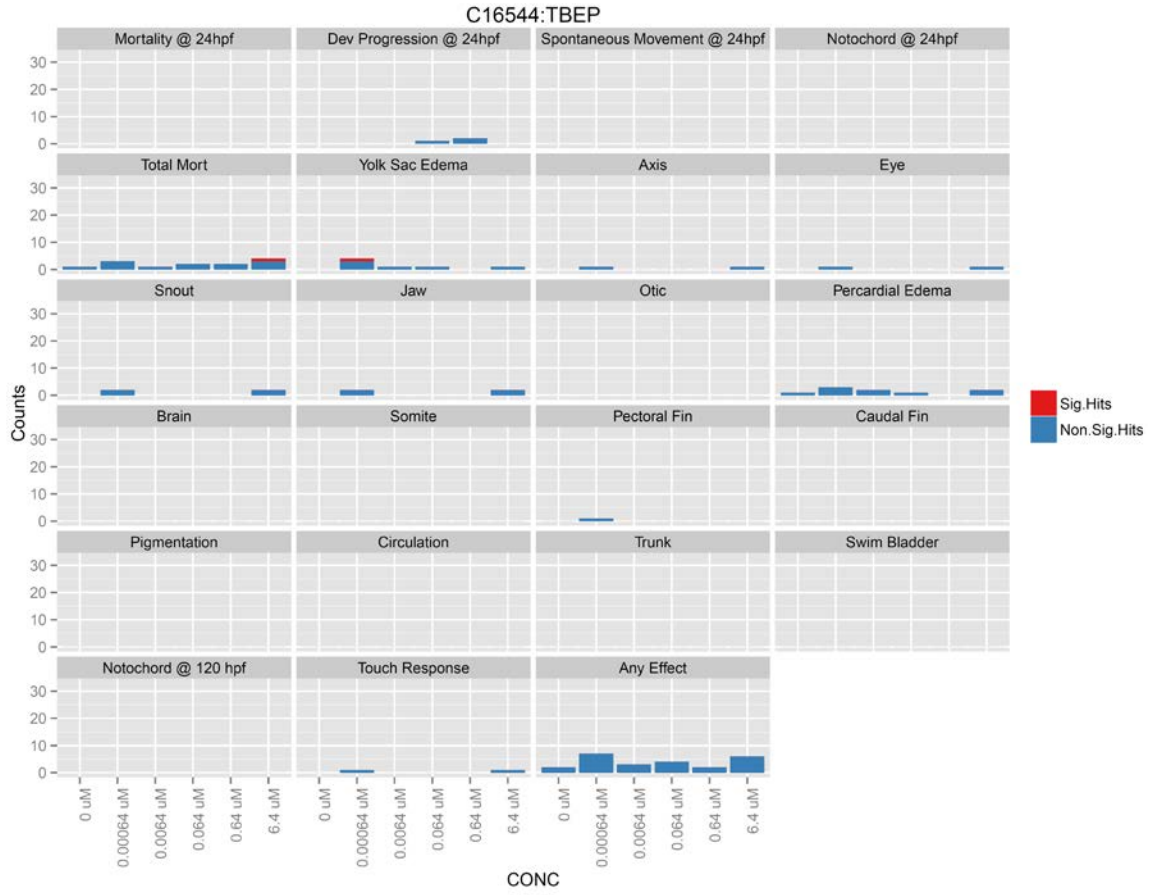


**TBP: Zebrafish larvae PMR assay results at 120 hpf**

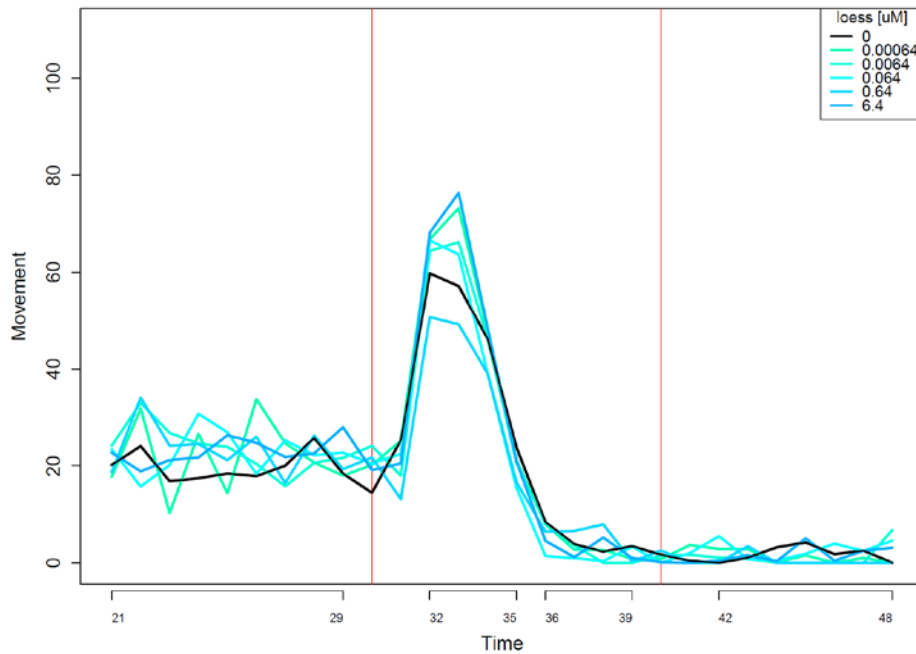


**Tris (2-butoxyethyl) phosphate TBEP**

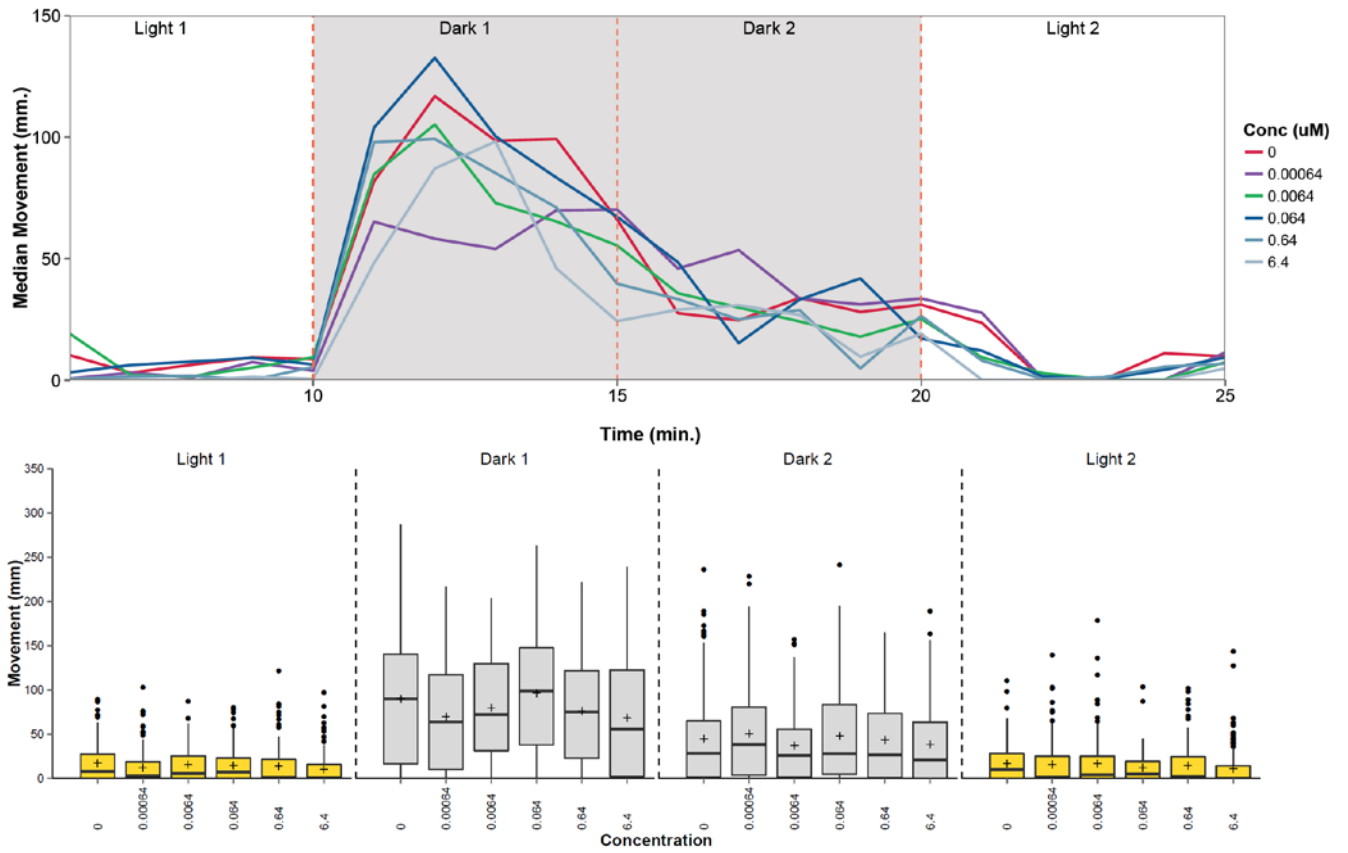
**TBEP: Zebrafish Mortality and Malformations at 24 and 120 hpf**



**TBEP: Zebrafish embryo PRAT results at 24 hpf**

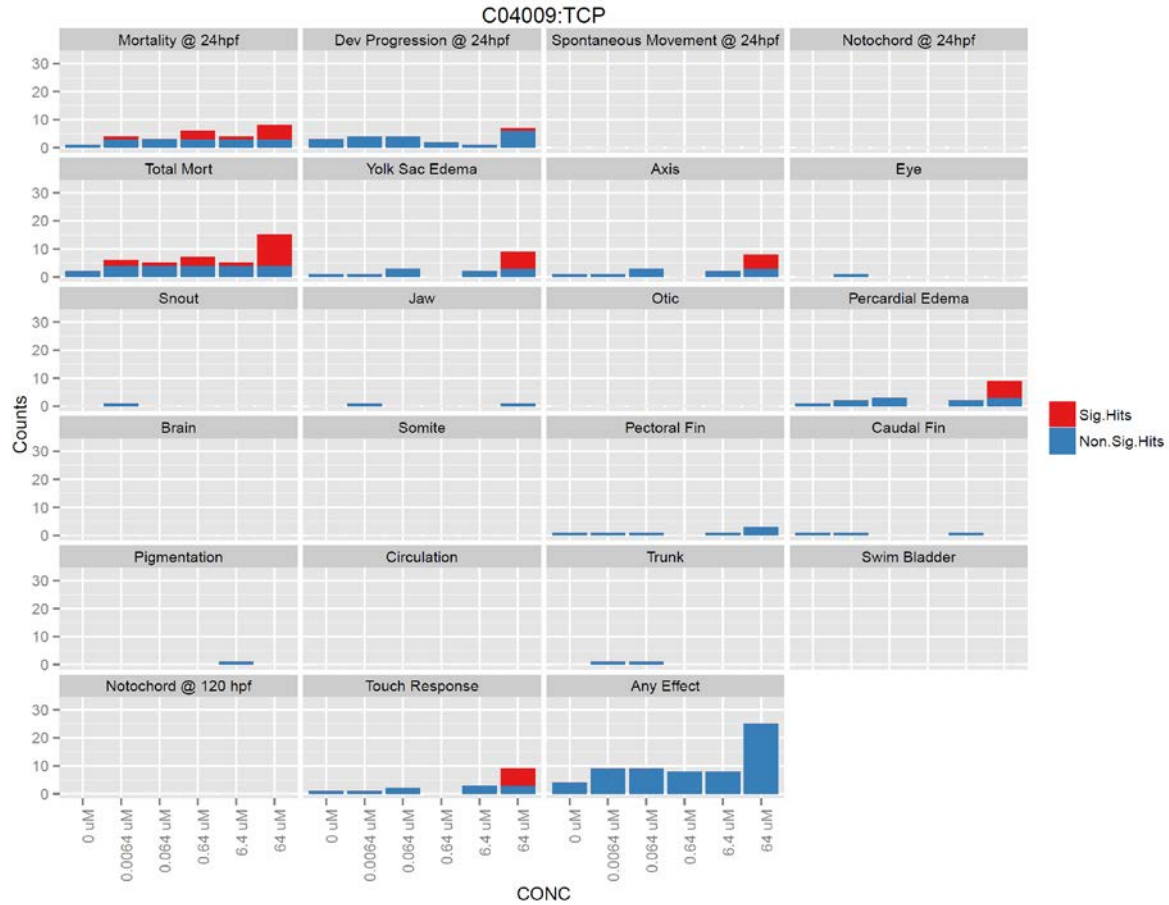


**TBEP: Zebrafish larvae PMR assay results at 120 hpf**

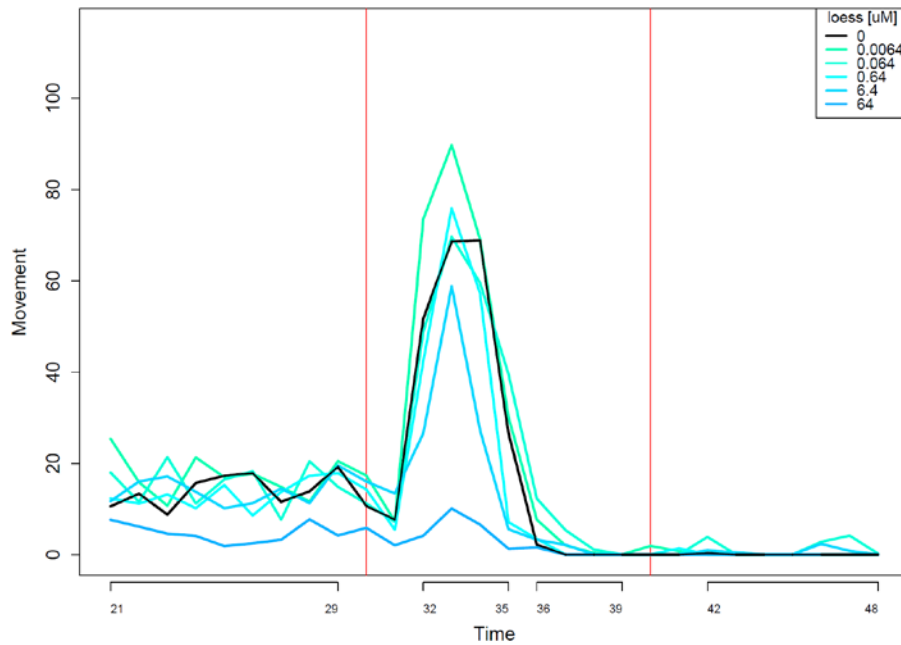


**Tricresyl phosphate (TCP)**

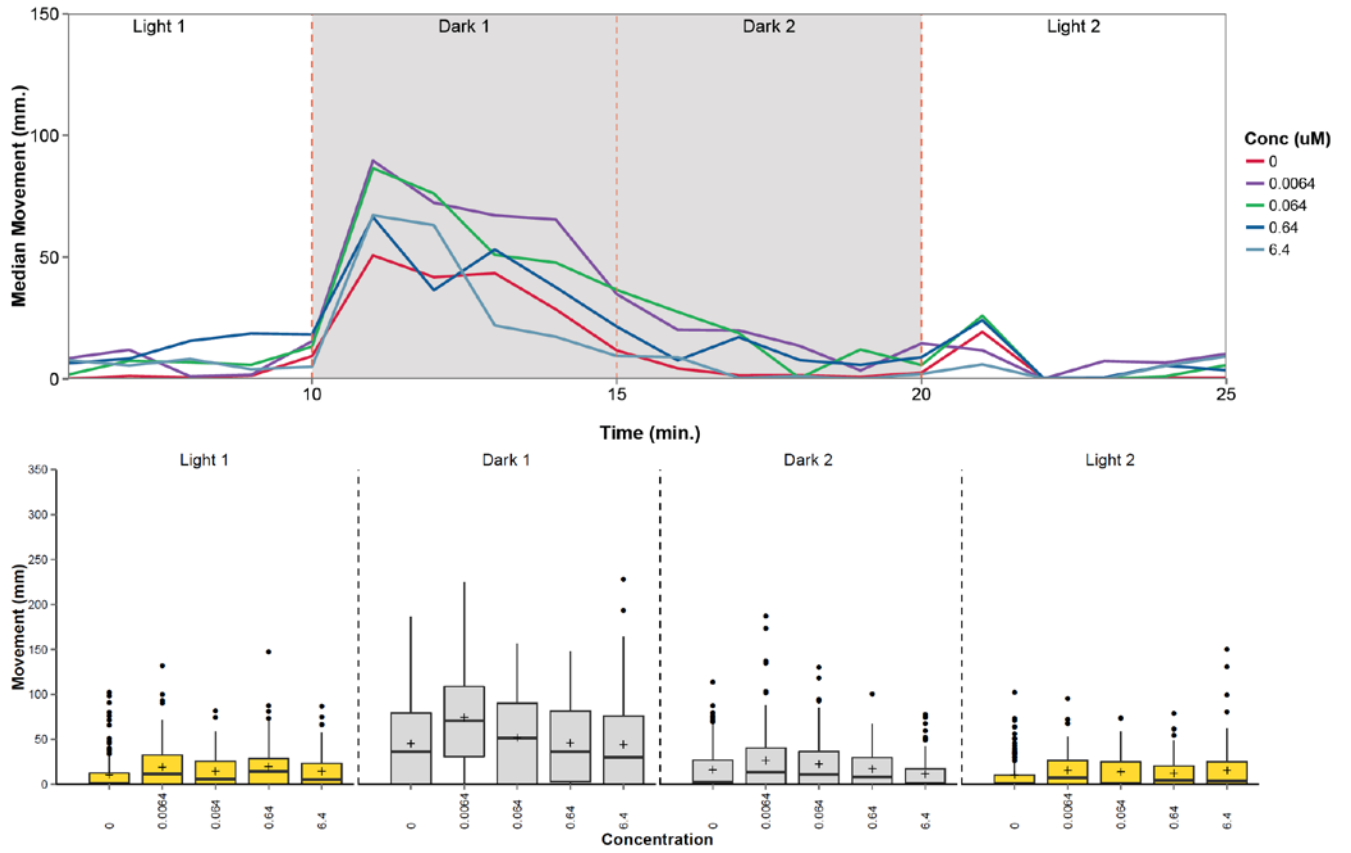
**TCP: Zebrafish Mortality and Malformations at 24 and 120 hpf**



**TCP: Zebrafish embryo PRAT results at 24 hpf**



*TCP: Zebrafish larvae PMR assay results at 120 hpf*



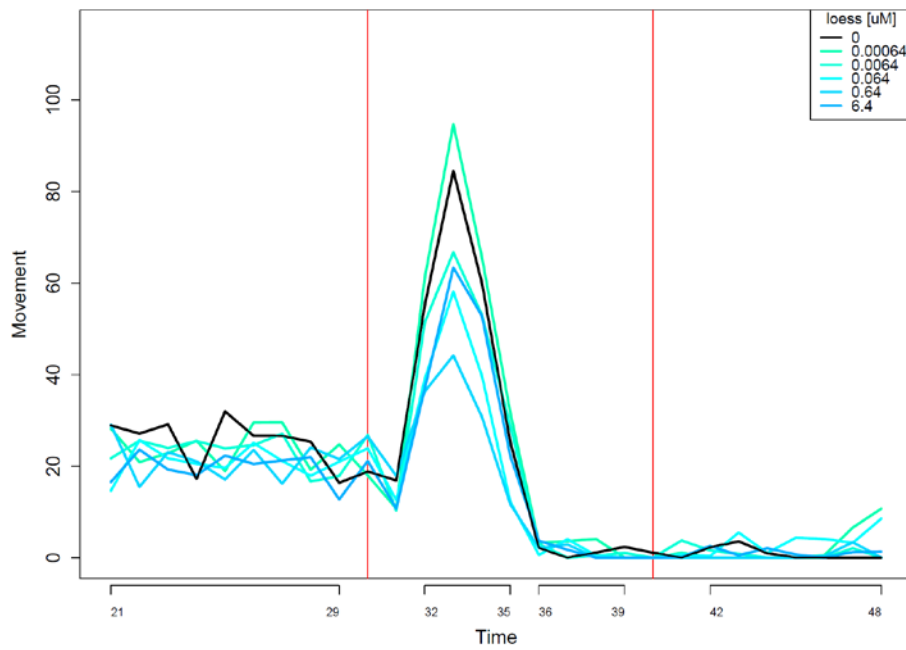


**Tris (2-ethylhexyl) phosphate (TEHP)**

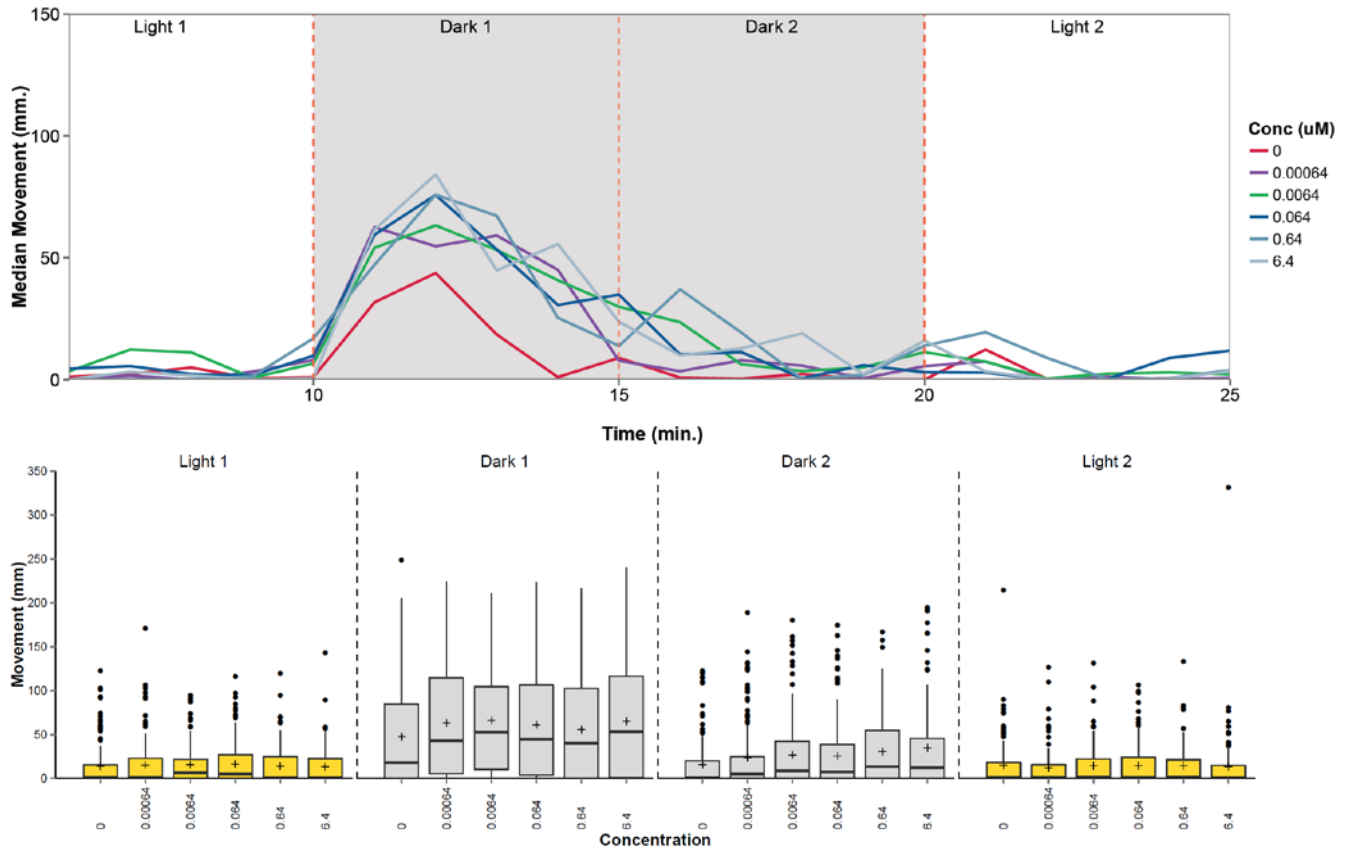
***TEHP: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***TEHP: Zebrafish embryo PRAT results at 24 hpf***

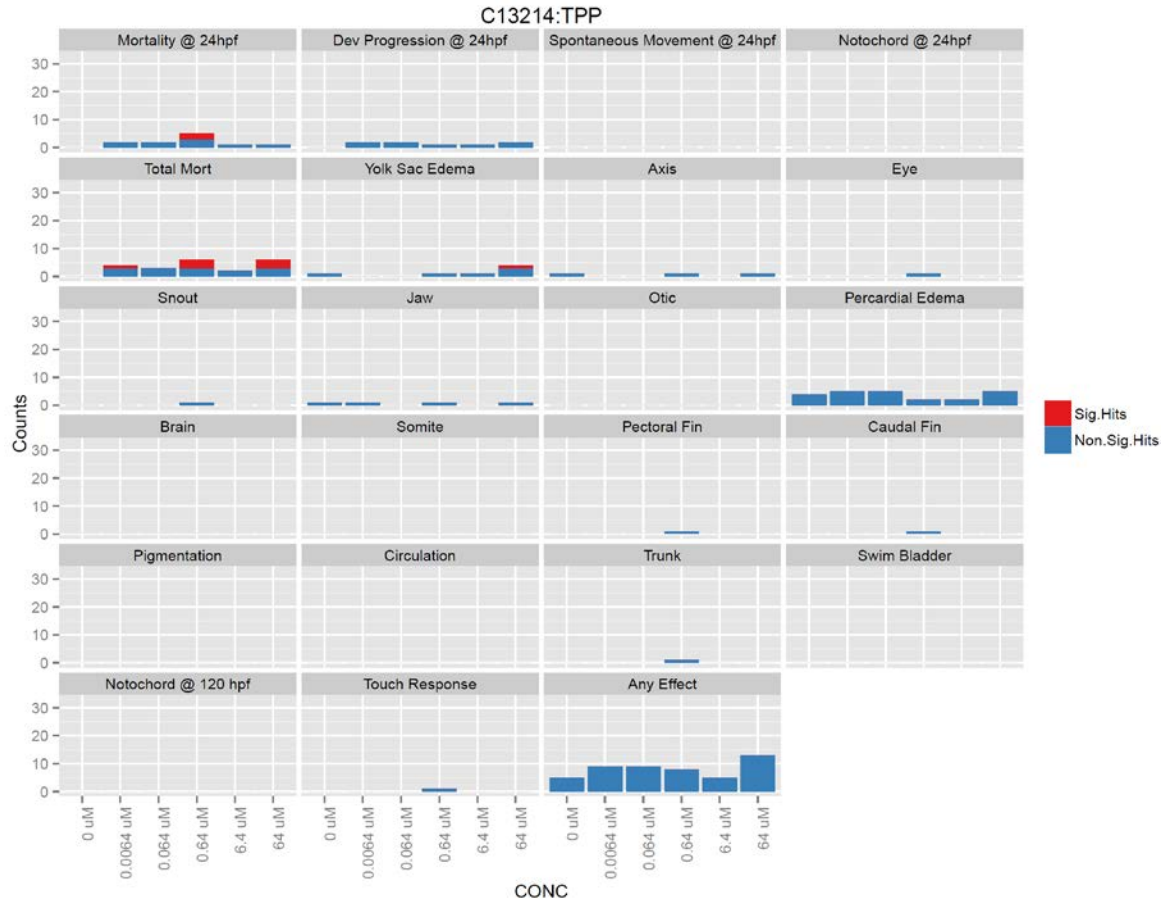


**TEHP: Zebrafish larvae PMR assay results at 120 hpf**

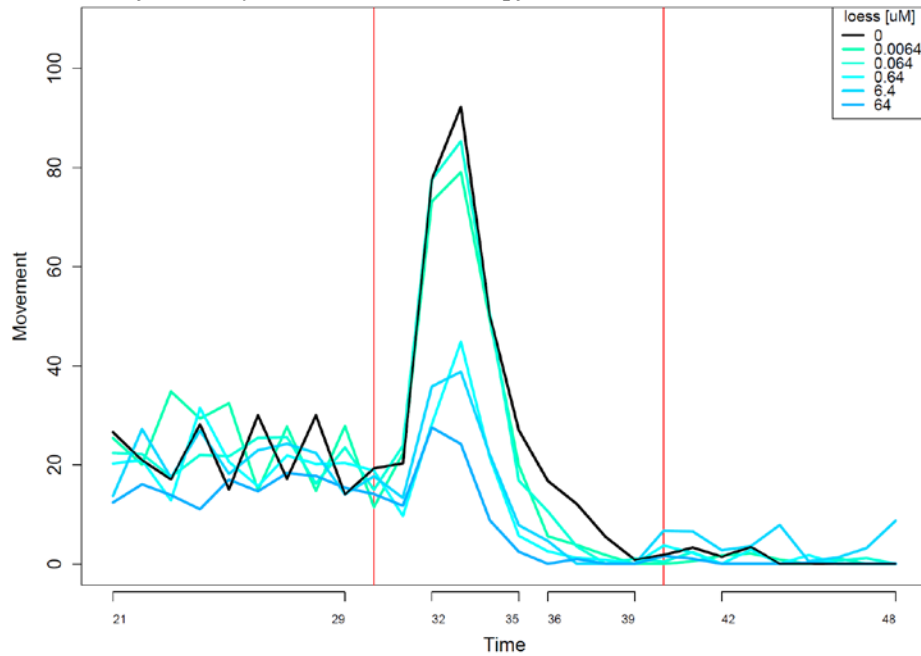


**Triphenyl phosphate (TPP)**

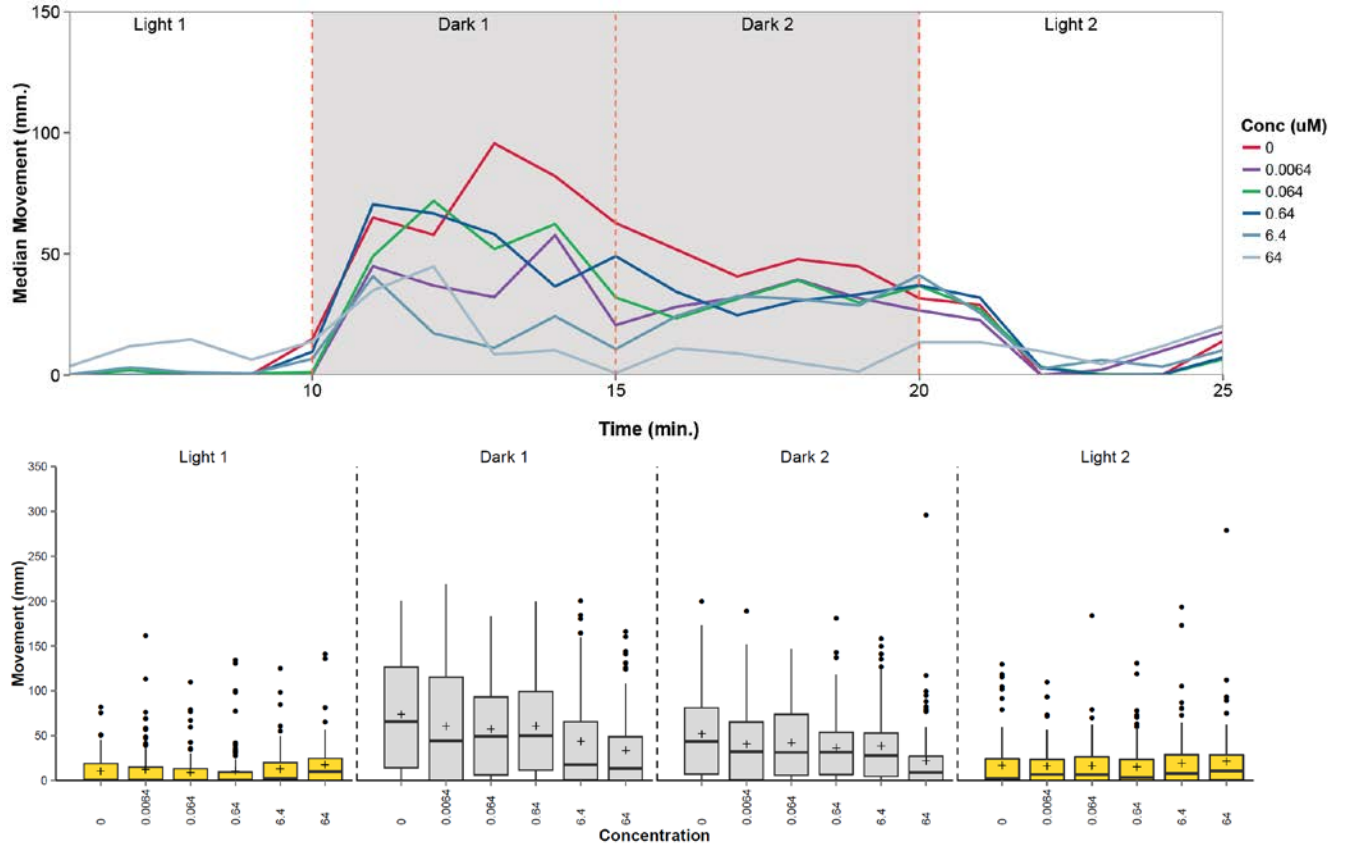
**TPP: Zebrafish Mortality and Malformations at 24 and 120 hpf**



**TPP: Zebrafish embryo PRAT results at 24 hpf**



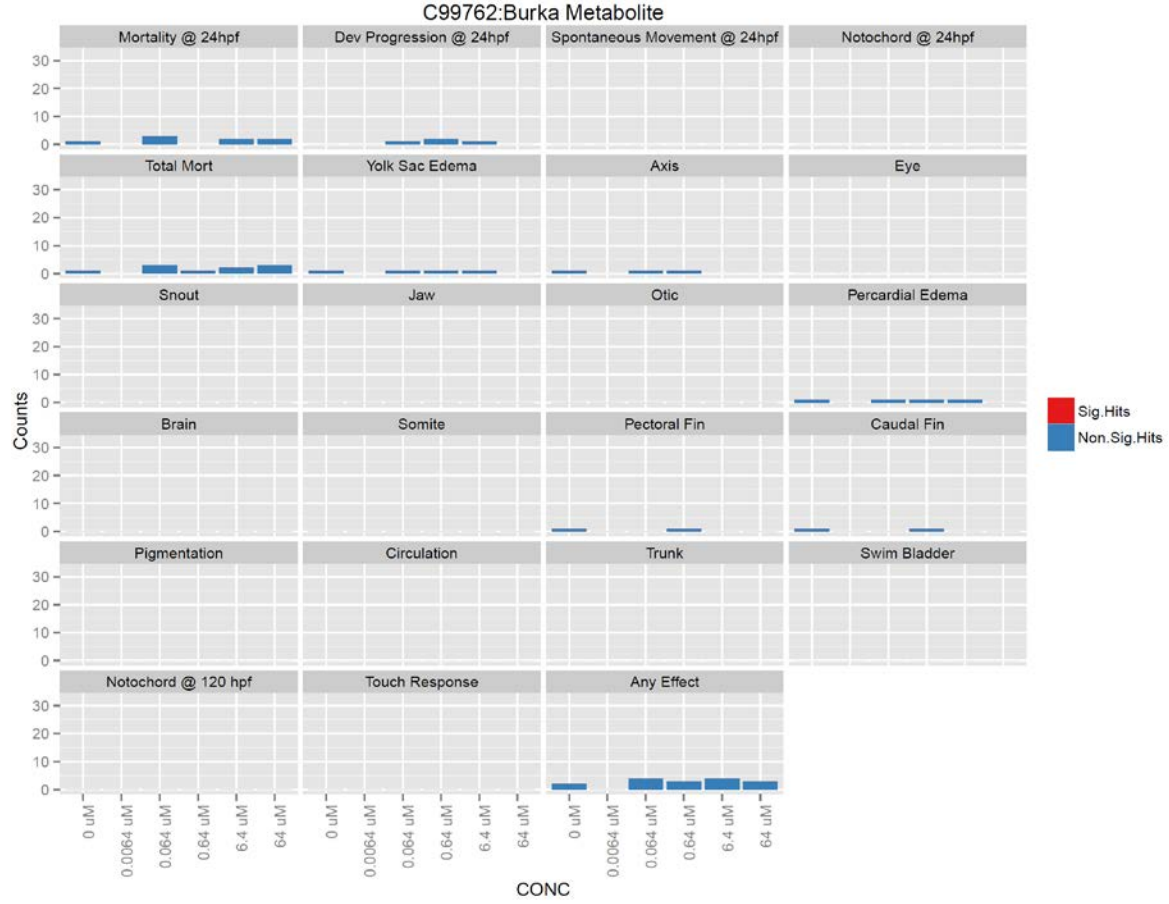
TPP: Zebrafish larvae PMR assay results at 120 hpf



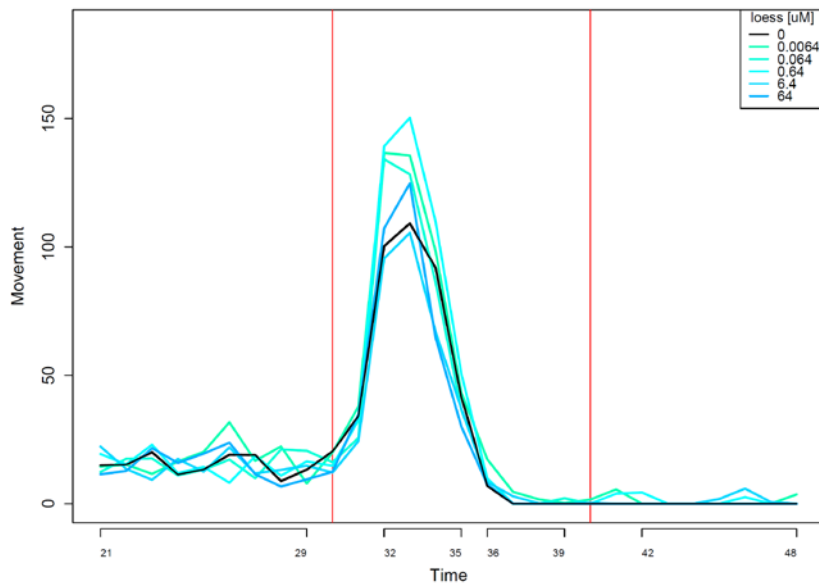
5. CHLORINATED PHOSPHATE ESTER (CPE) FLAME RETARDANTS

Bis (2-chloropropyl) 1-carboxyethyl phosphate (BCPCP)

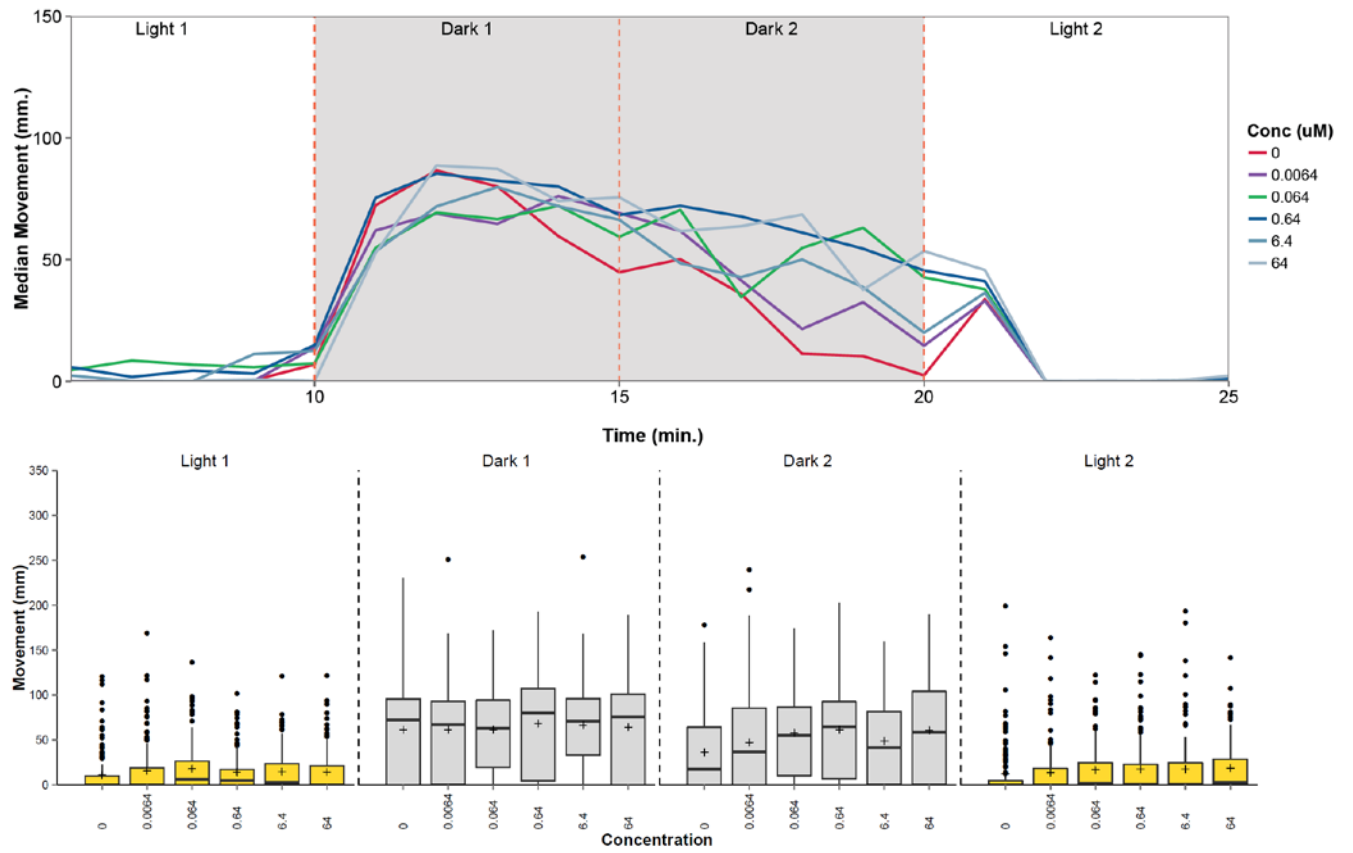
BCPCP: Zebrafish Mortality and Malformations at 24 and 120 hpf



BCPCP: Zebrafish embryo PRAT results at 24 hpf

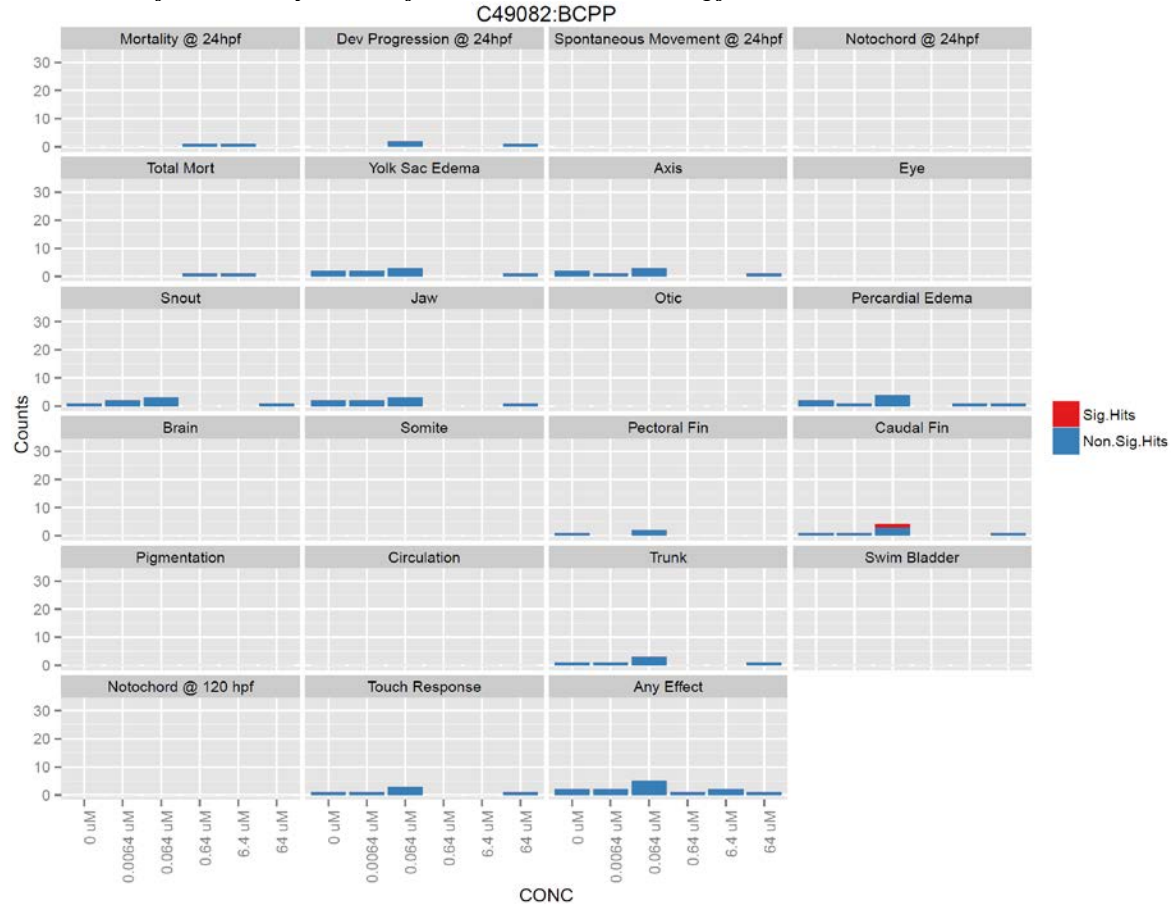


*BCPCP: Zebrafish larvae PMR assay results at 120 hpf*

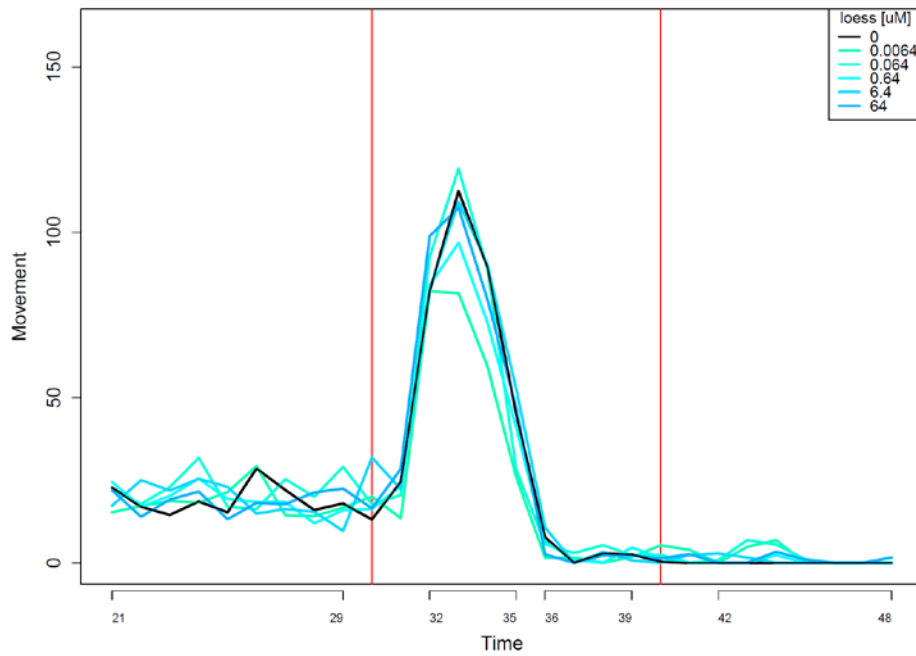


**Bis (2-chloropropyl) phosphate (BCPP)**

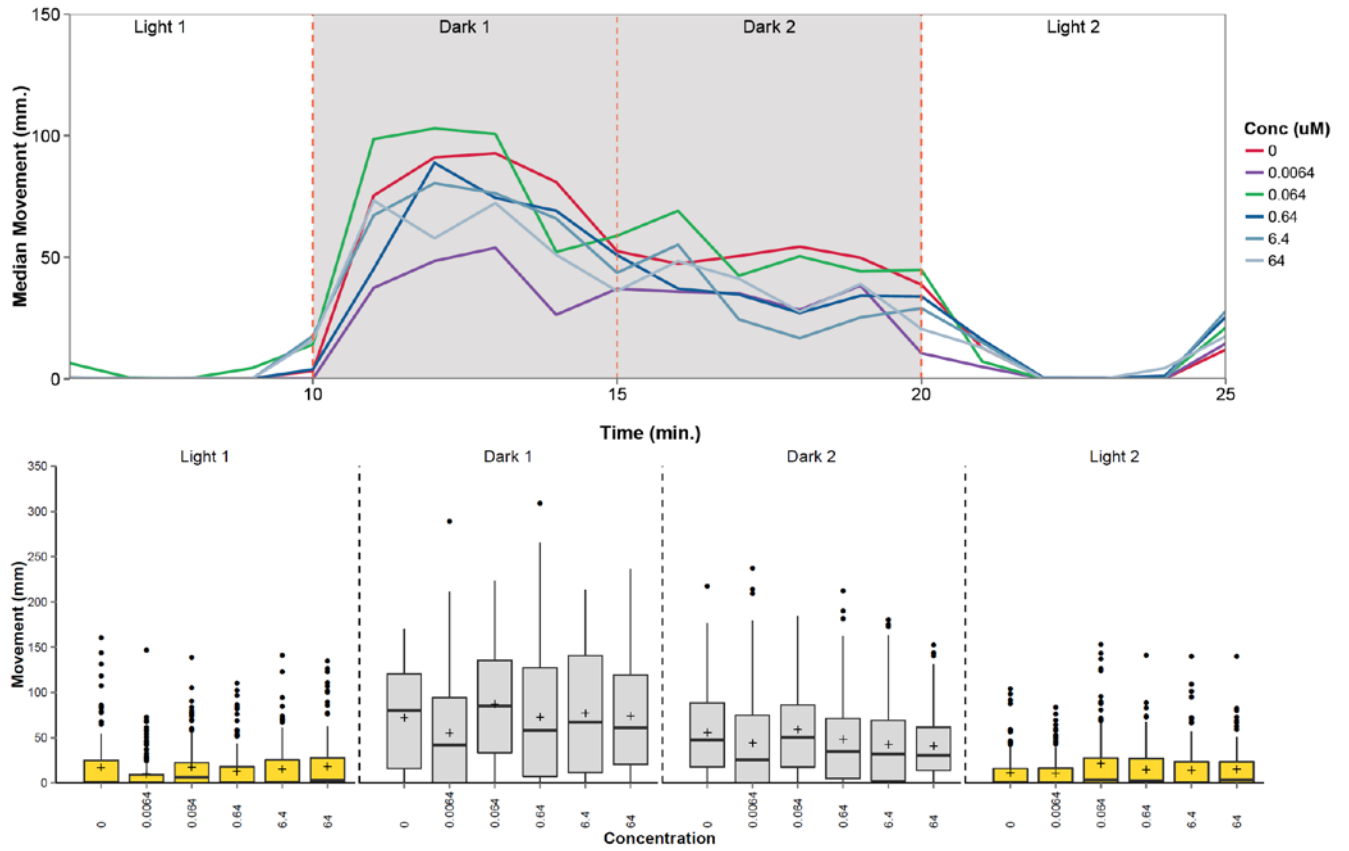
***BCPP: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***BCPP: Zebrafish embryo PRAT results at 24 hpf***



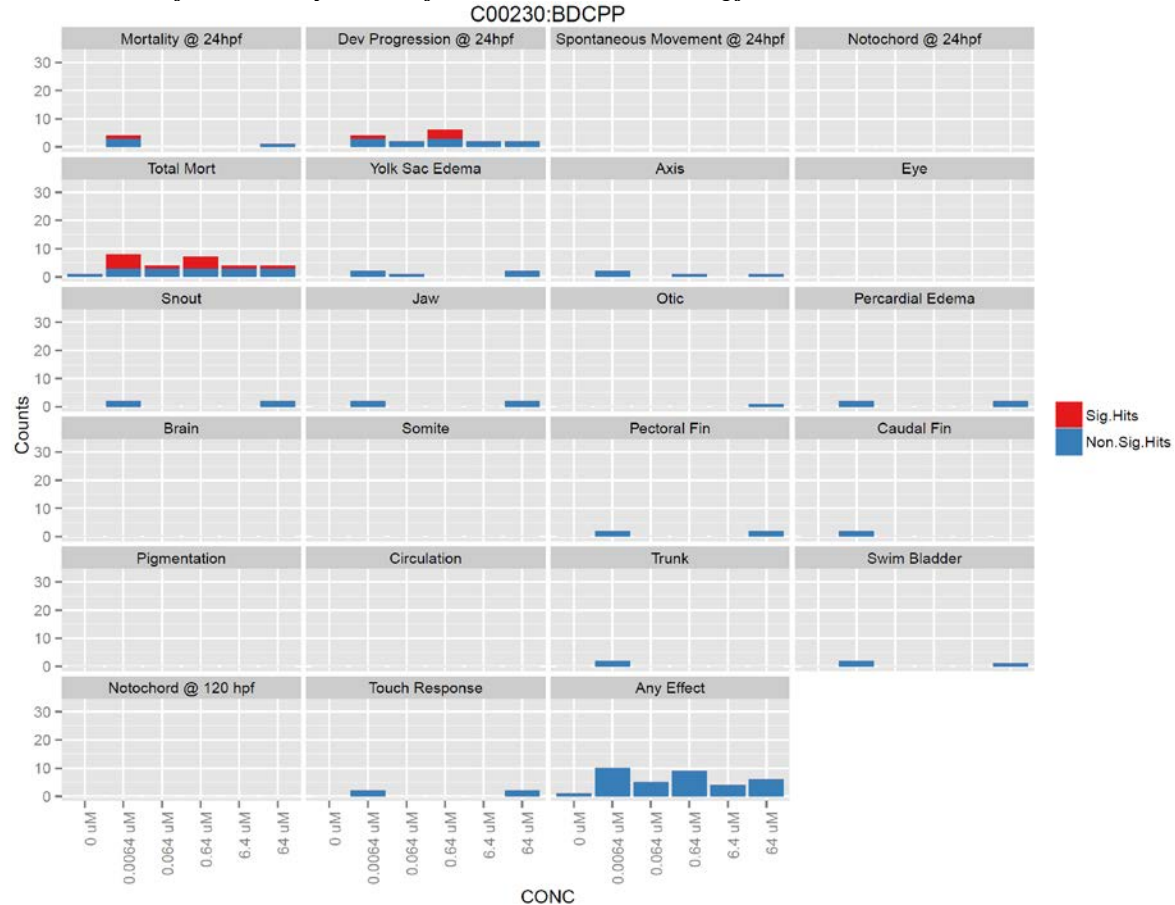
*BCPP: Zebrafish larvae PMR assay results at 120 hpf*



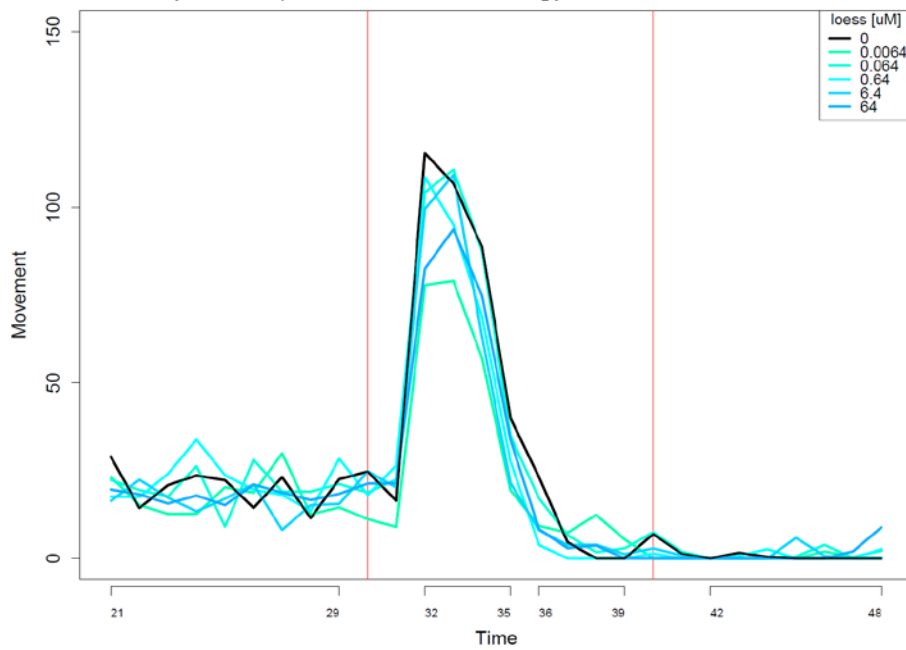


**Bis(1,3-dichloro-2-propyl)phosphate (BDCPP)**

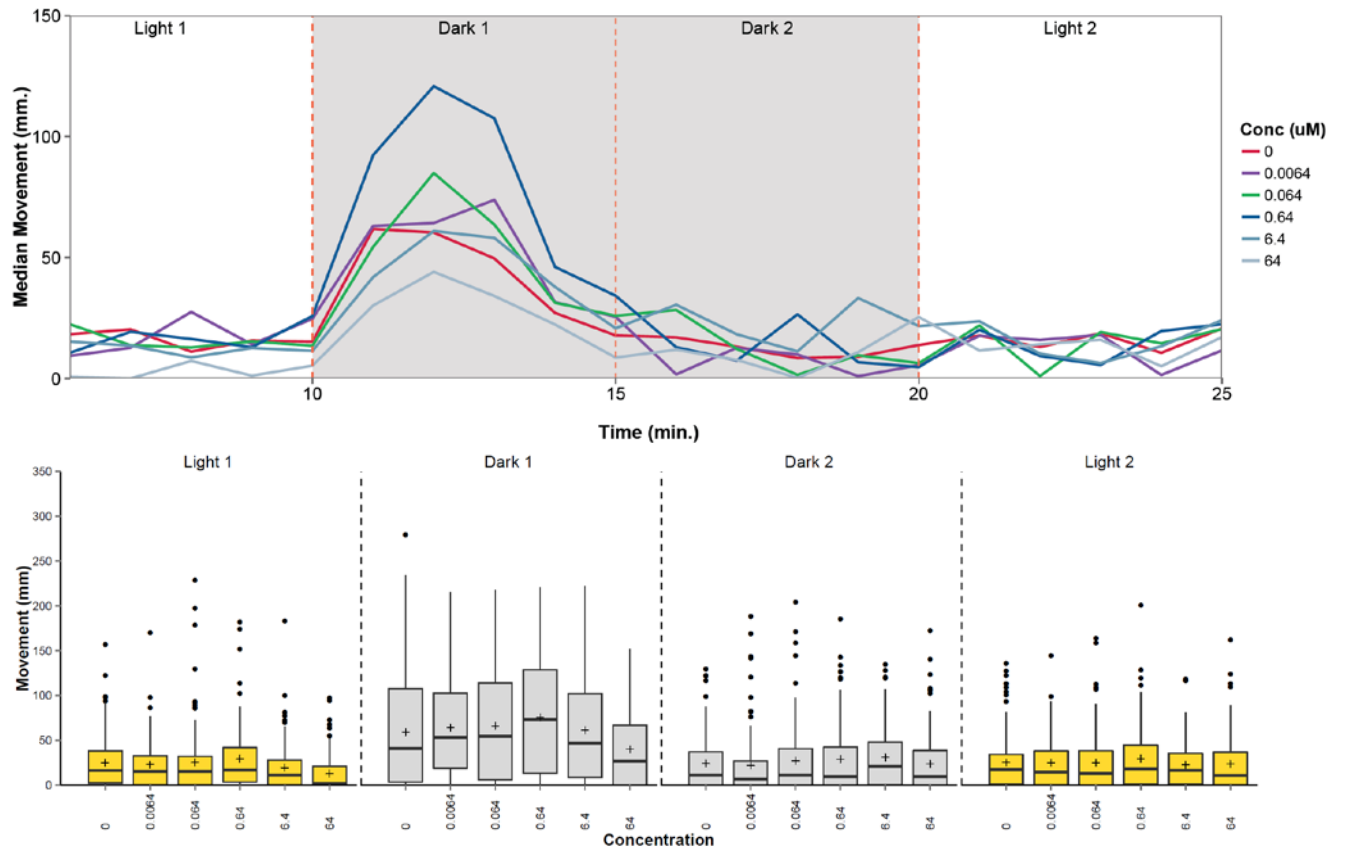
***BDCPP: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***BDCPP: Zebrafish embryo PRAT results at 24 hpf***

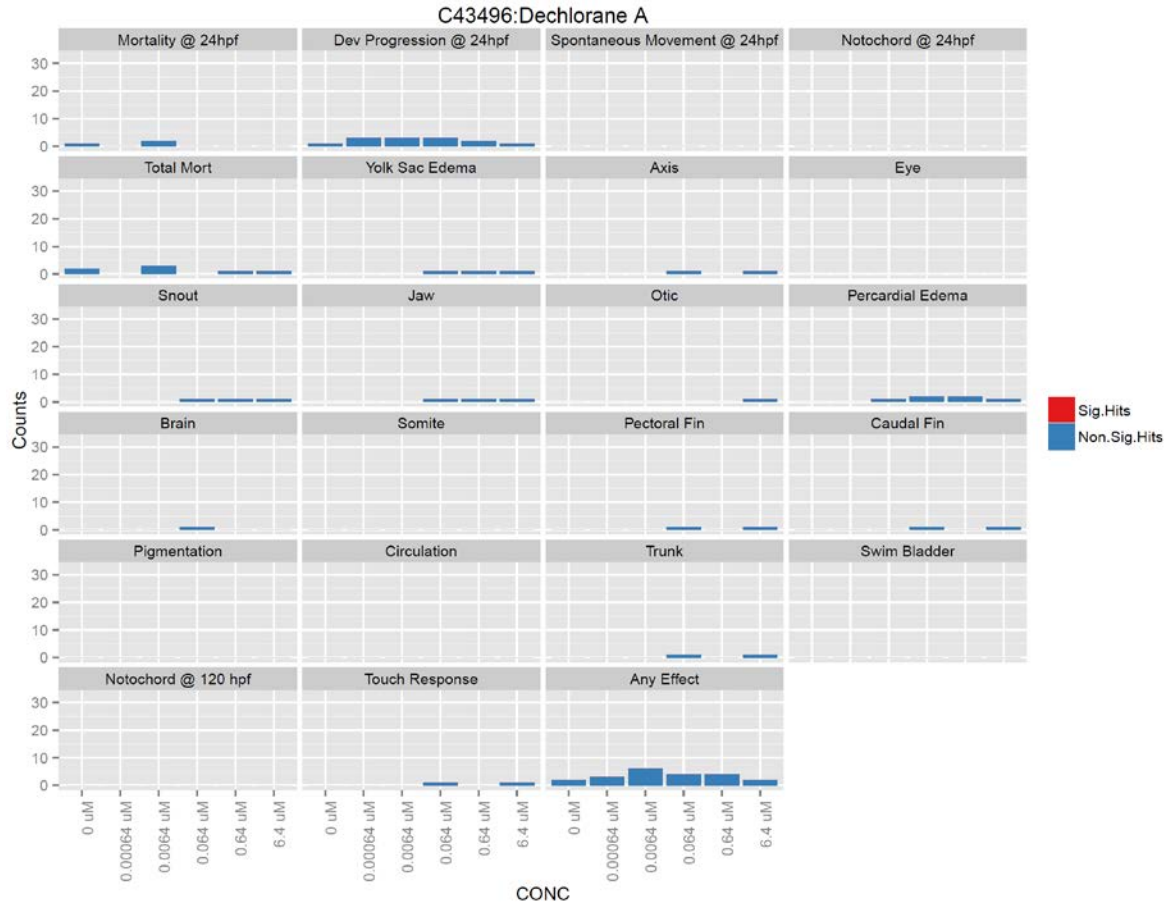


**BDCPP: Zebrafish larvae PMR assay results at 120 hpf**

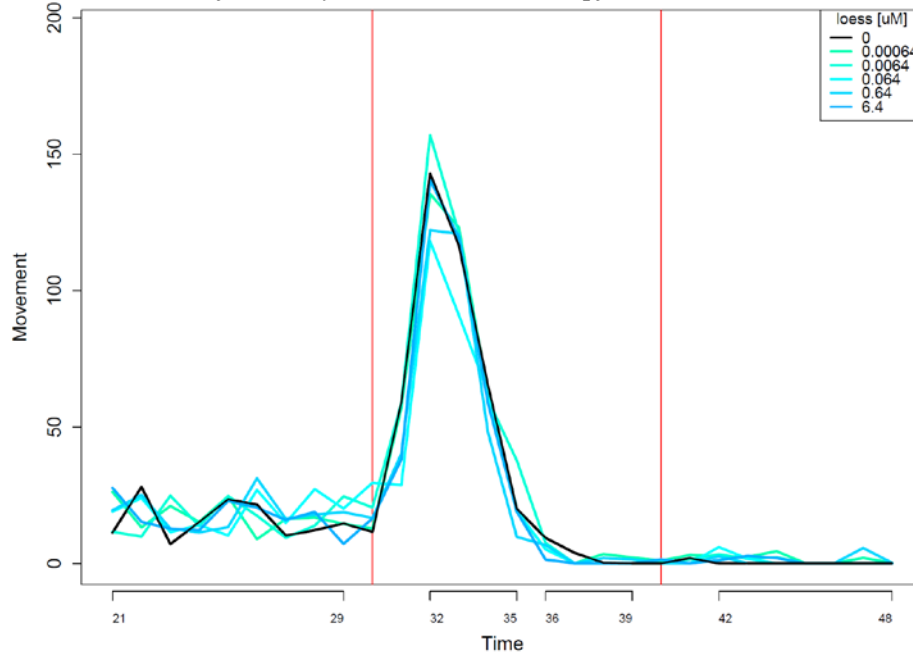


## Dechlorane Plus

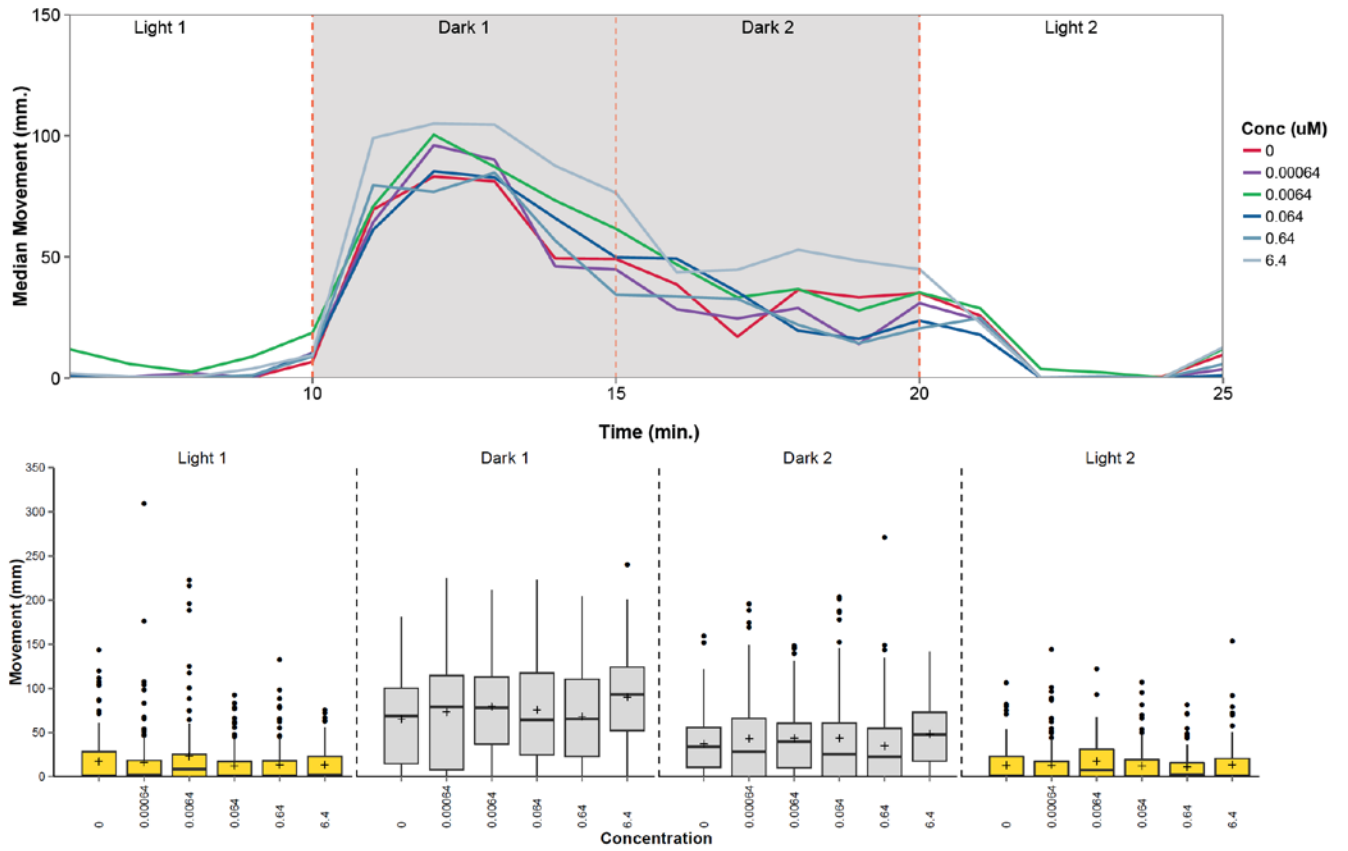
### Dechlorane: Zebrafish Mortality and Malformations at 24 and 120 hpf



### Dechlorane: Zebrafish embryo PRAT results at 24 hpf



*Dechlorane: Zebrafish larvae PMR assay results at 120 hpf*

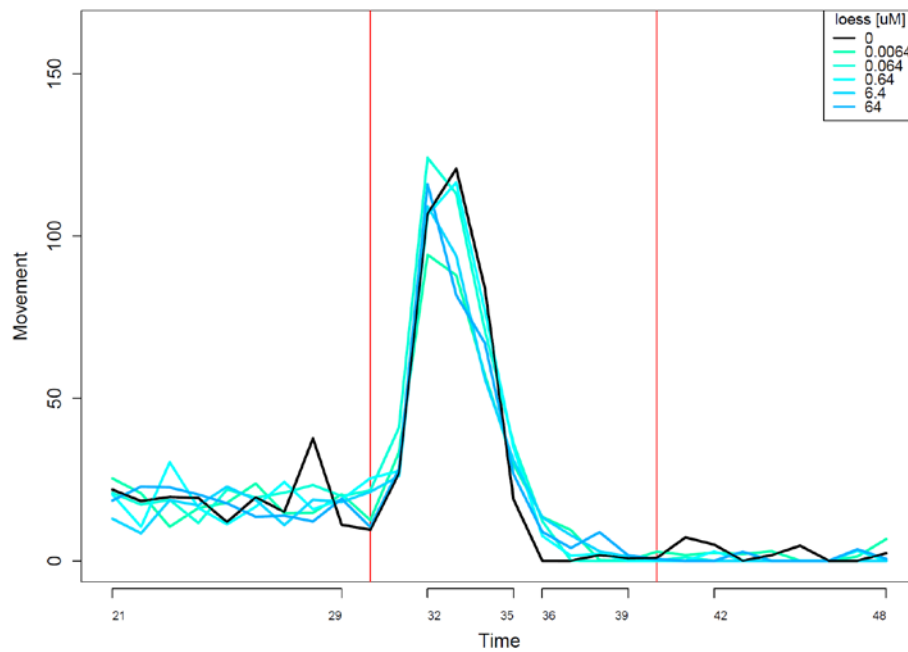


**Mono (2-chloropropyl) phosphate (MCP)**

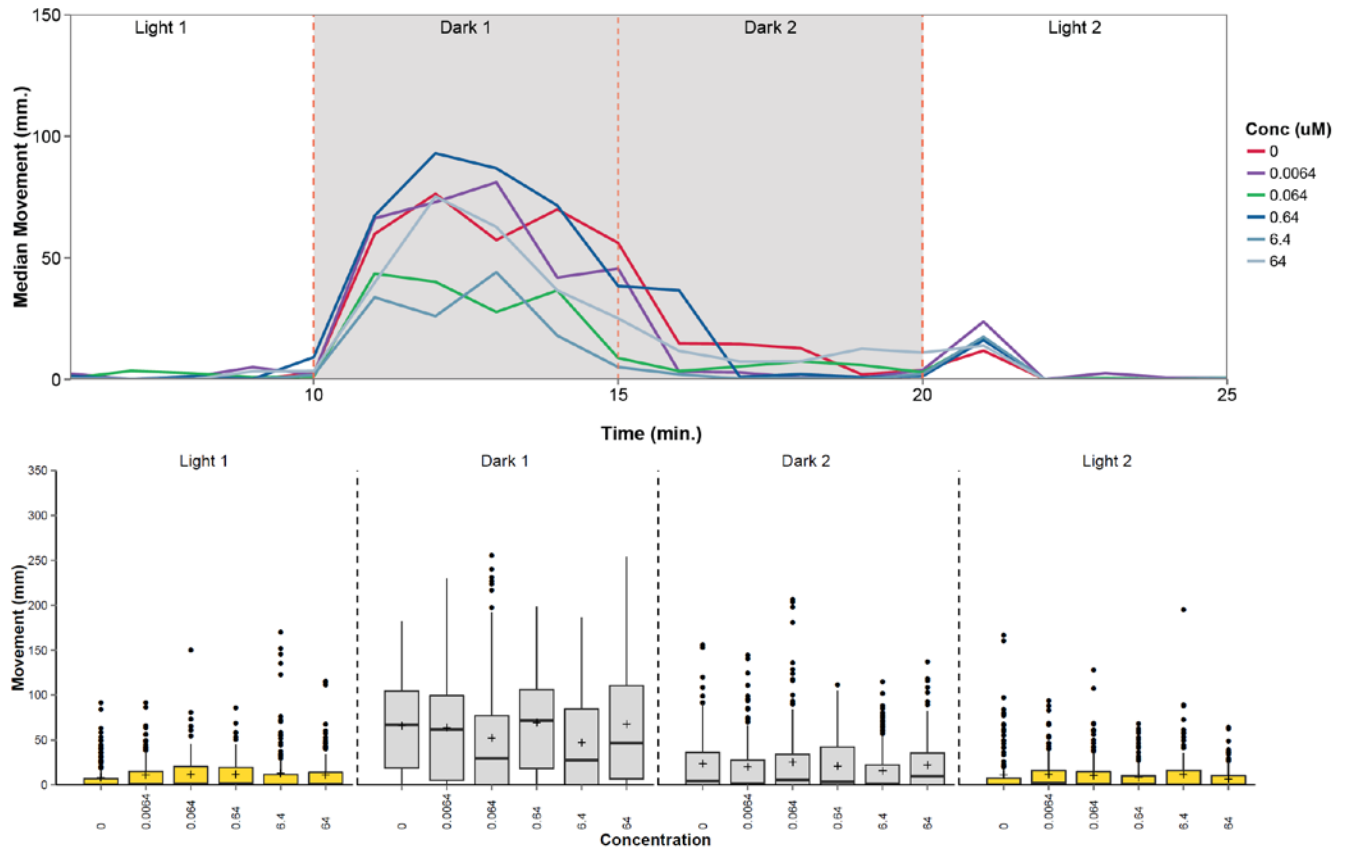
***MCP: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***MCP: Zebrafish embryo PRAT results at 24 hpf***



*MCPP: Zebrafish larvae PMR assay results at 120 hpf*

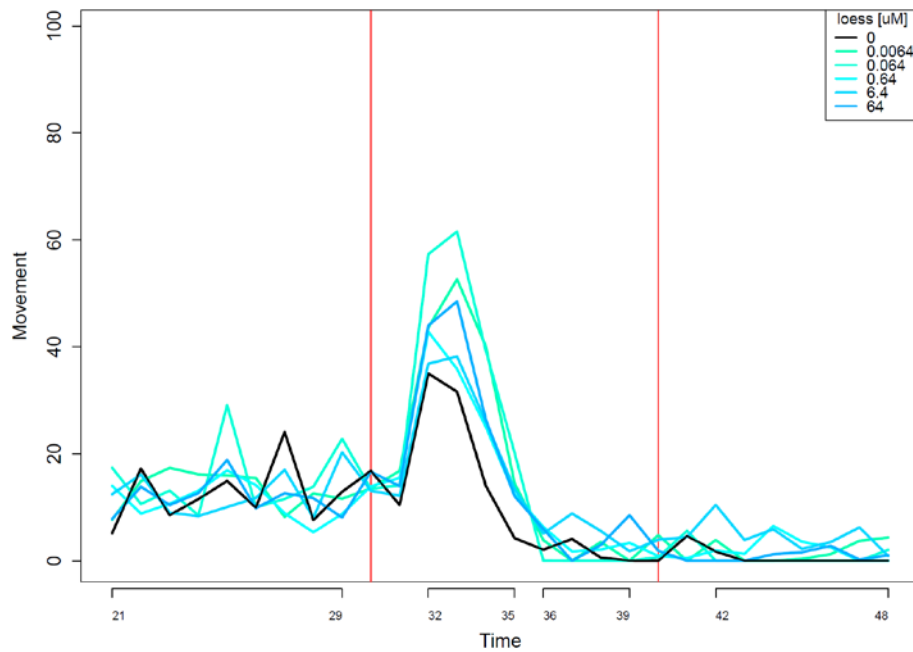


**Tris (2-chloroethyl) phosphate (TCEP)**

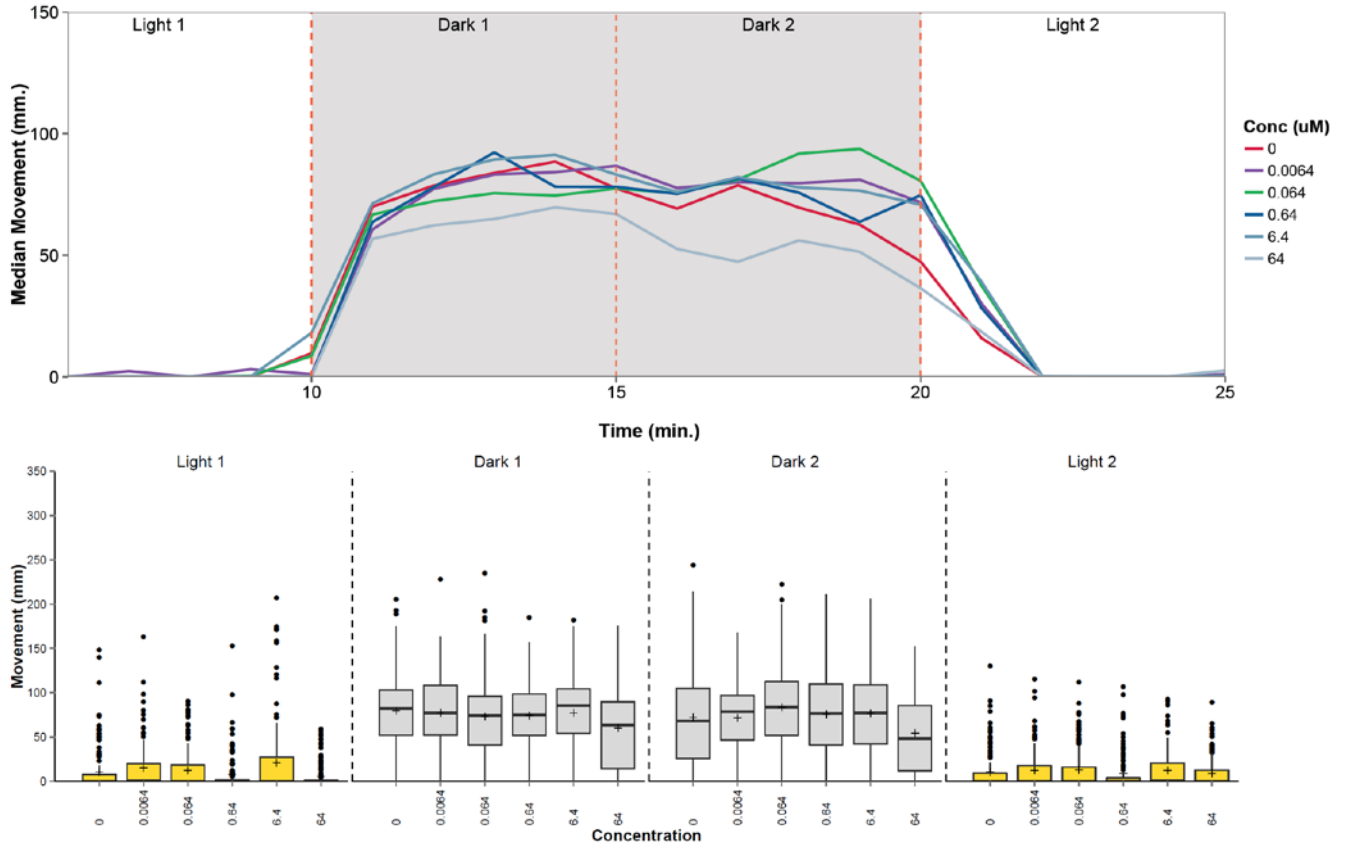
***TCEP: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***TCEP: Zebrafish embryo PRAT results at 24 hpf***



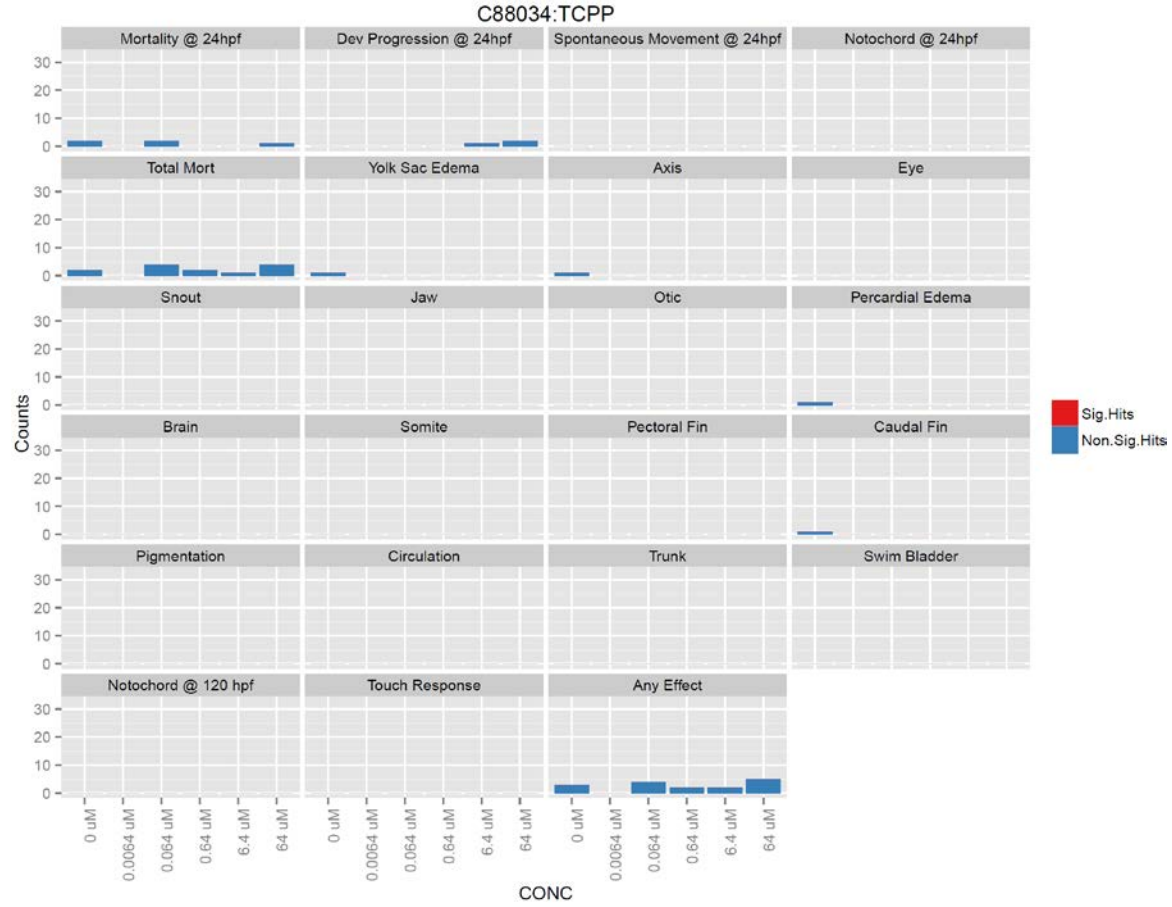
*TCEP: Zebrafish larvae PMR assay results at 120 hpf*



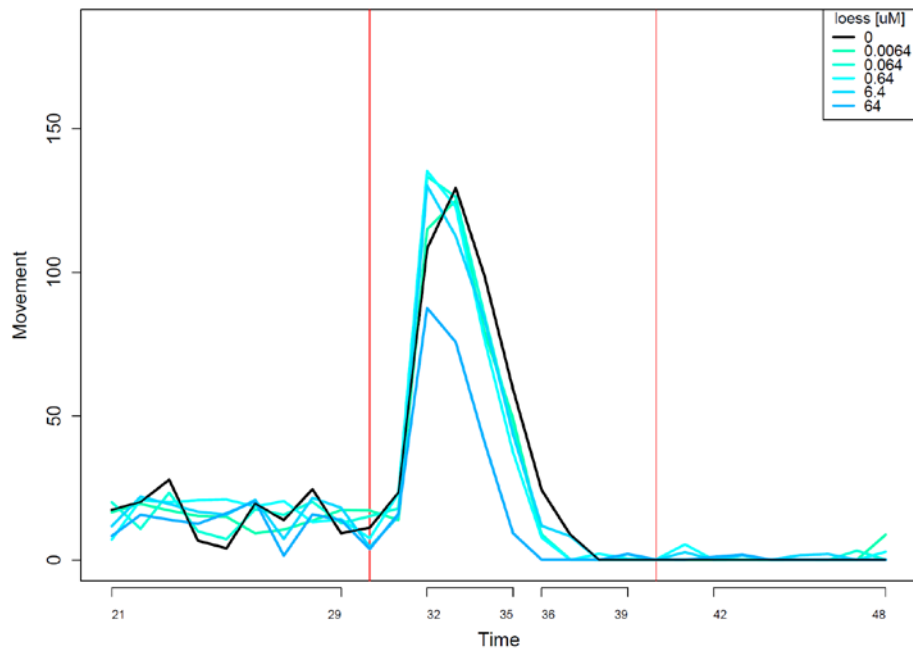


**Tris (1-chloropropyl) phosphate (TCPP)**

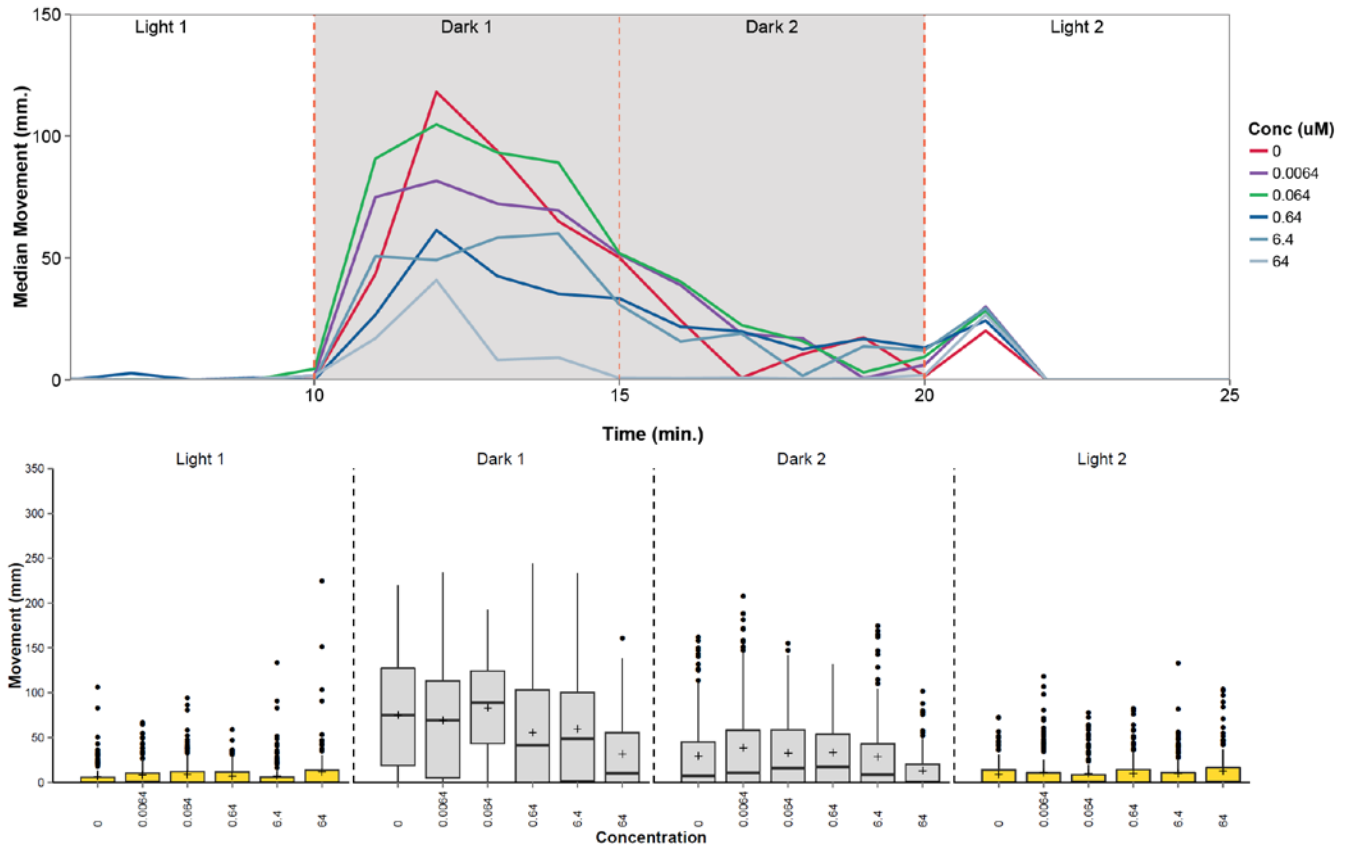
***TCPP: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***TCPP: Zebrafish embryo PRAT results at 24 hpf***

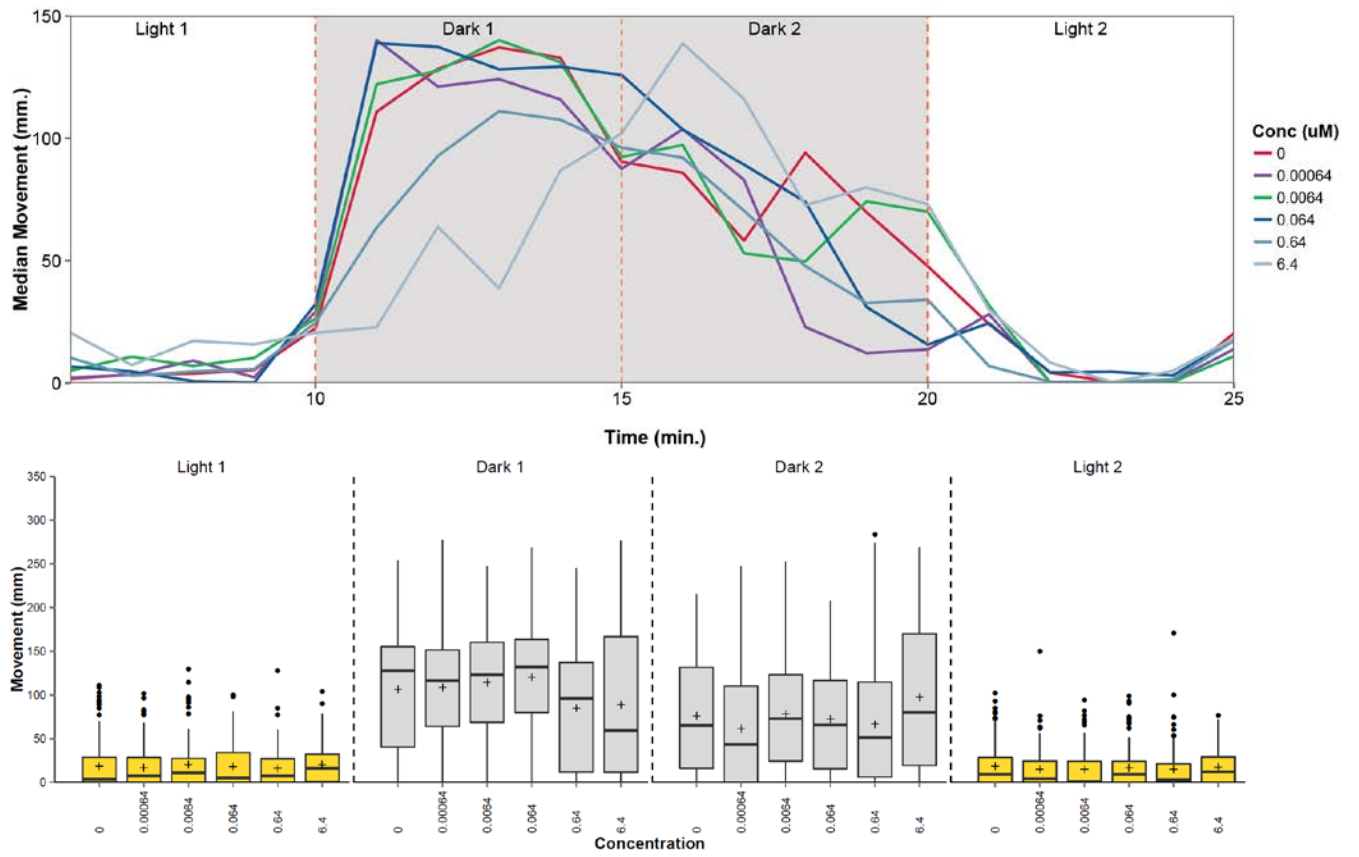


*TCPP: Zebrafish larvae PMR assay results at 120 hpf*





**2,4,6-TBP: Zebrafish larvae PMR assay results at 120 hpf**

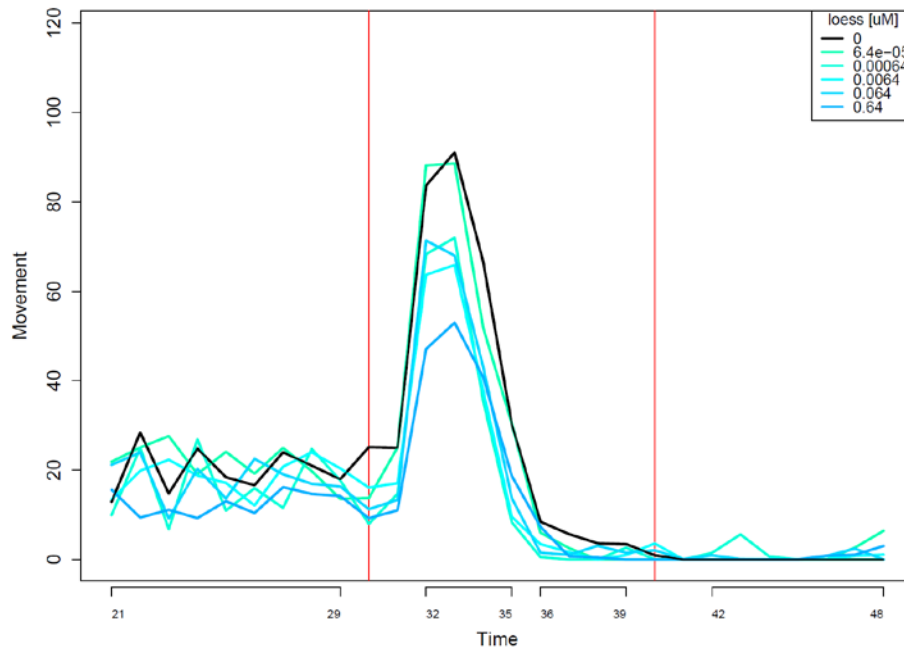


**3-Hydroxy-2,2',4,4'-tetraBDE (3-OH-BDE-47)**

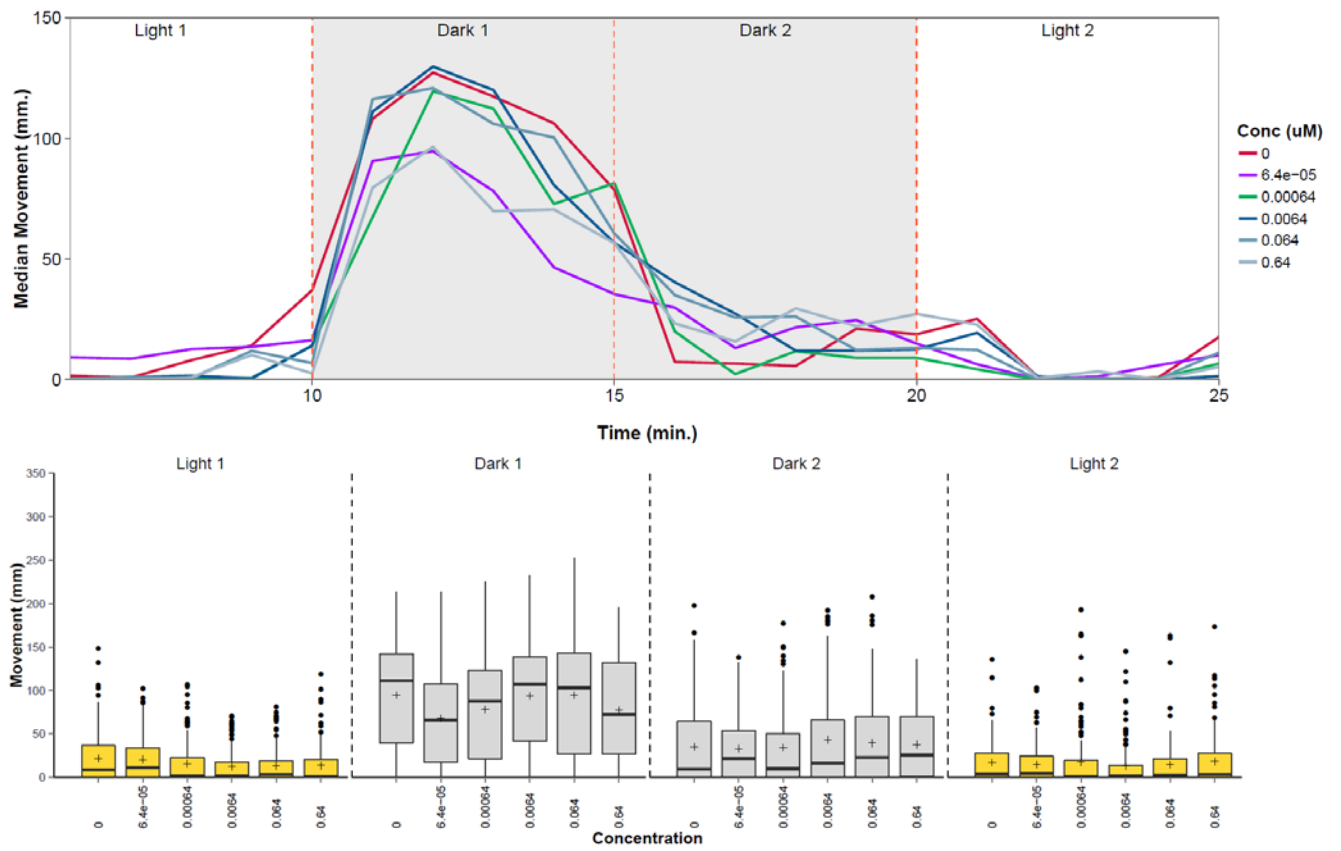
***3-OH-BDE-47: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***3-OH-BDE-47: Zebrafish embryo PRAT results at 24 hpf***

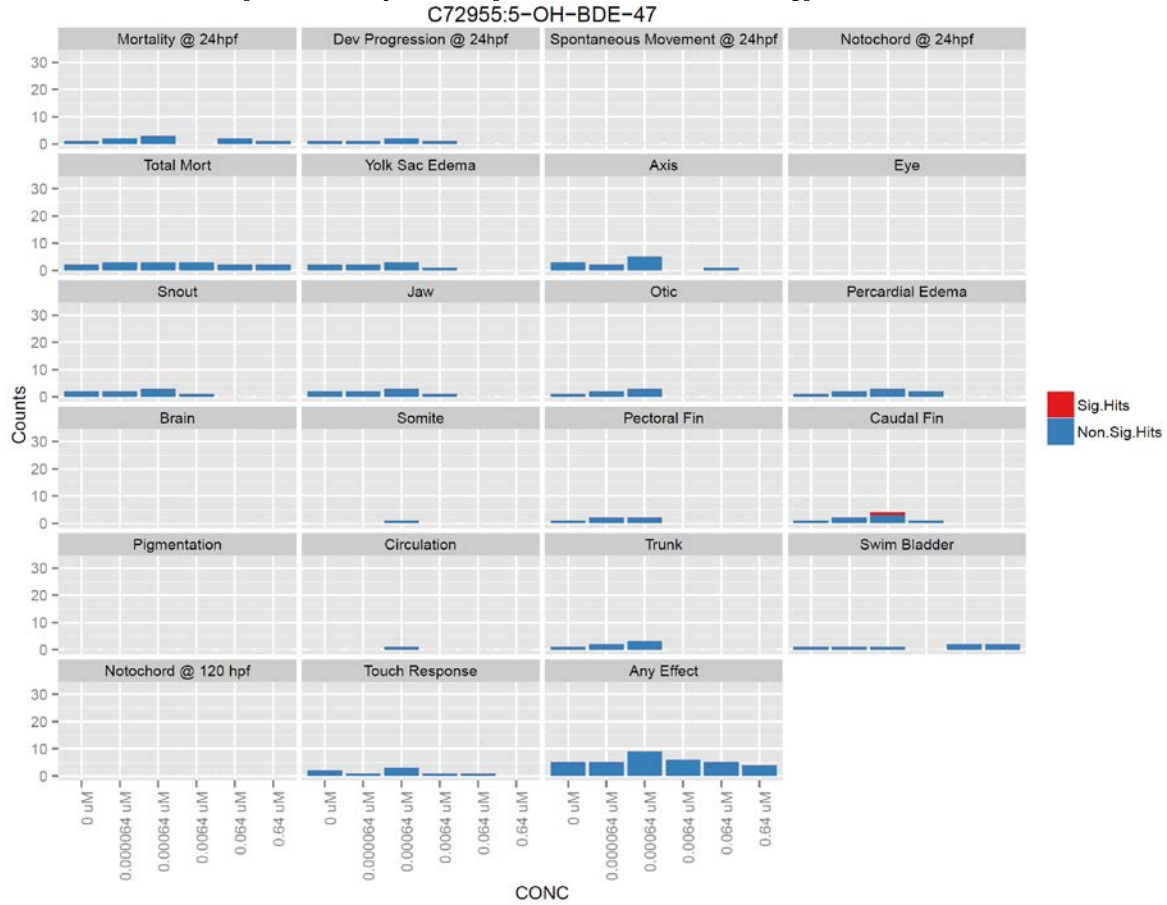


**3-OH-BDE-47: Zebrafish larvae PMR assay results at 120 hpf**

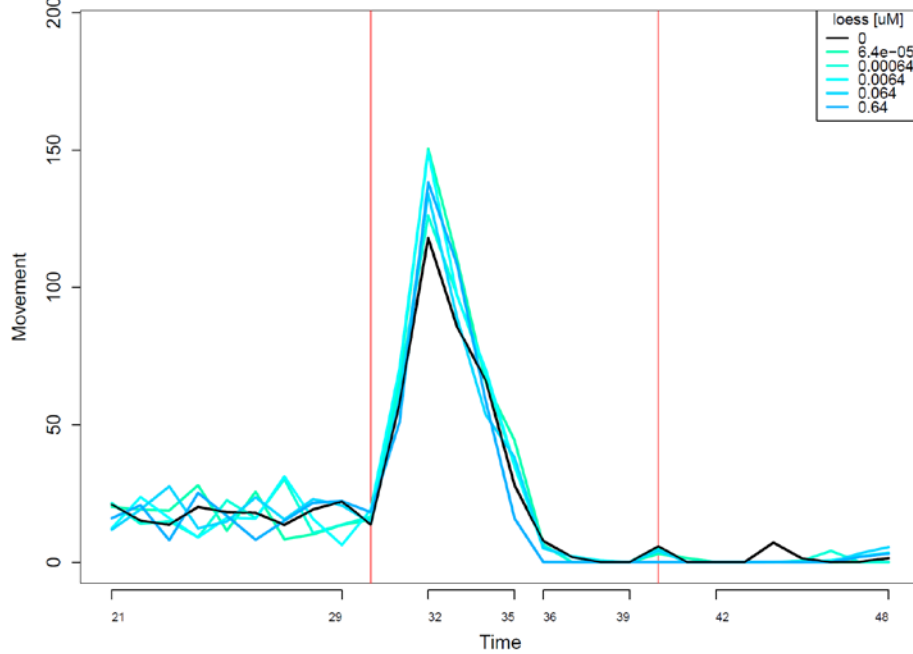


**5-Hydroxy-2,2',4,4'-tetraBDE (5-OH-BDE-47)**

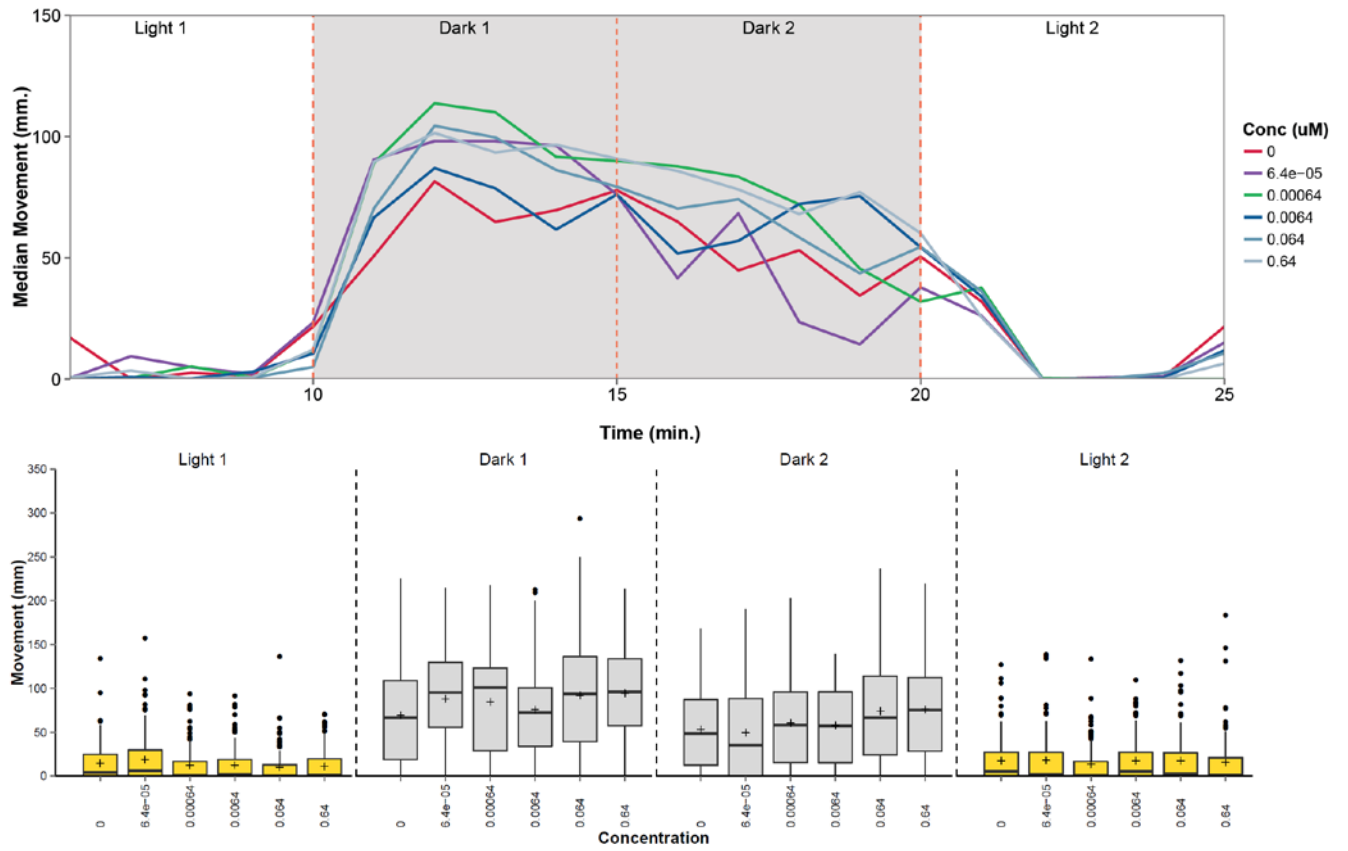
**5-OH-BDE-47: Zebrafish Mortality and Malformations at 24 and 120 hpf**



**5-OH-BDE-47: Zebrafish embryo PRAT results at 24 hpf**



*5-OH-BDE-47*: Zebrafish larvae PMR assay results at 120 hpf



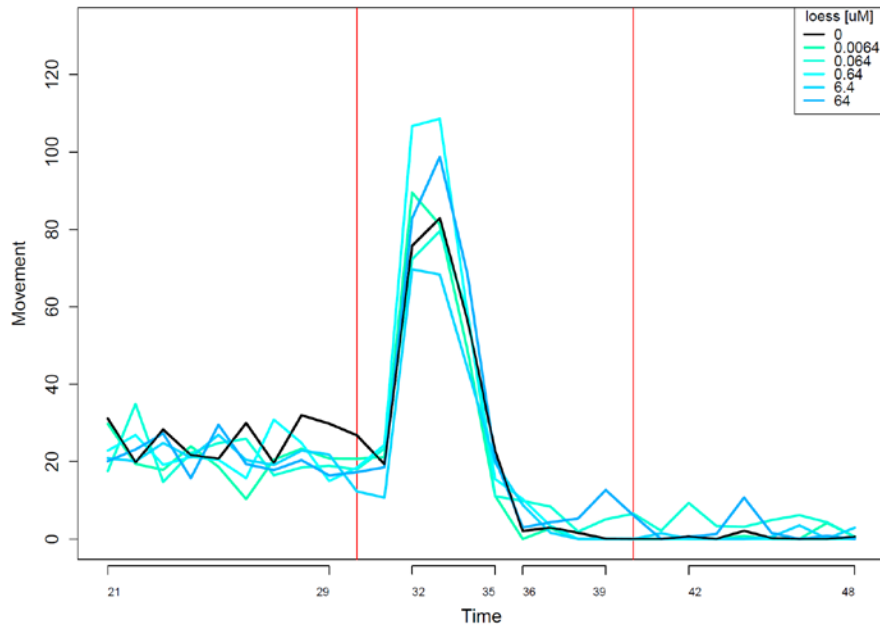


**6-Hydroxy-2,2',4,4'-tetraBDE (6-OH-BDE-47)**

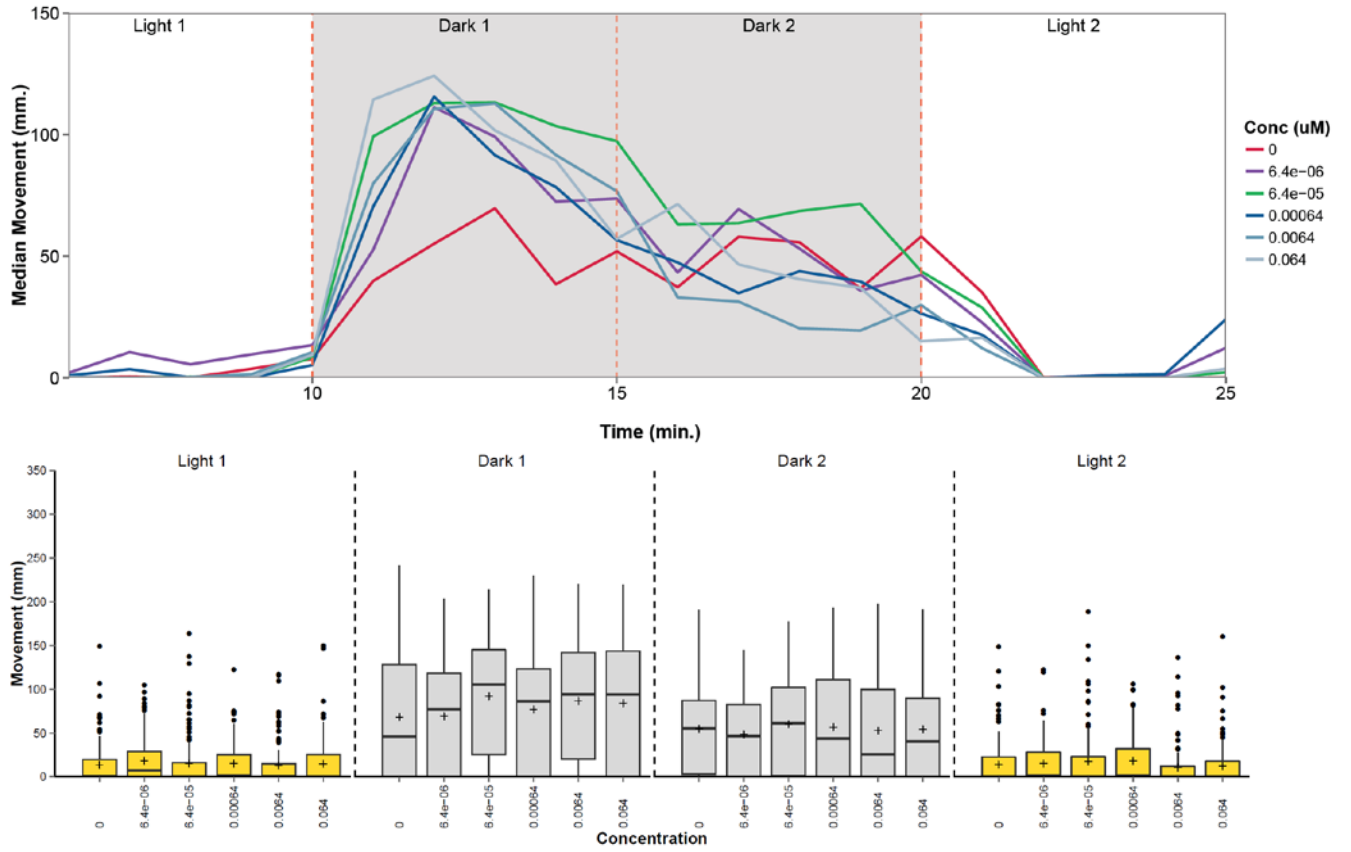
**6-OH-BDE-47: Zebrafish Mortality and Malformations at 24 and 120 hpf**



**6-OH-BDE-47: Zebrafish embryo PRAT results at 24 hpf**

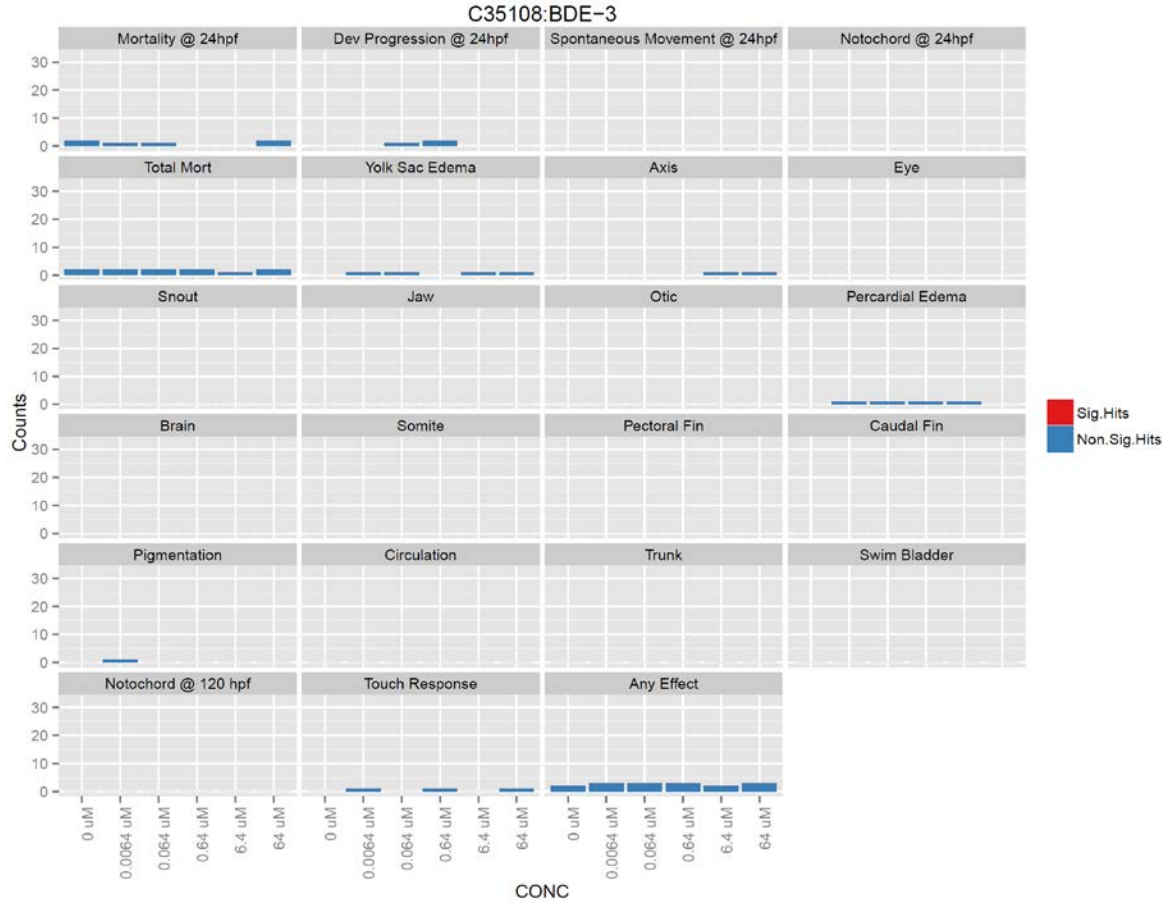


6-OH-BDE-47: Zebrafish larvae PMR assay results at 120 hpf

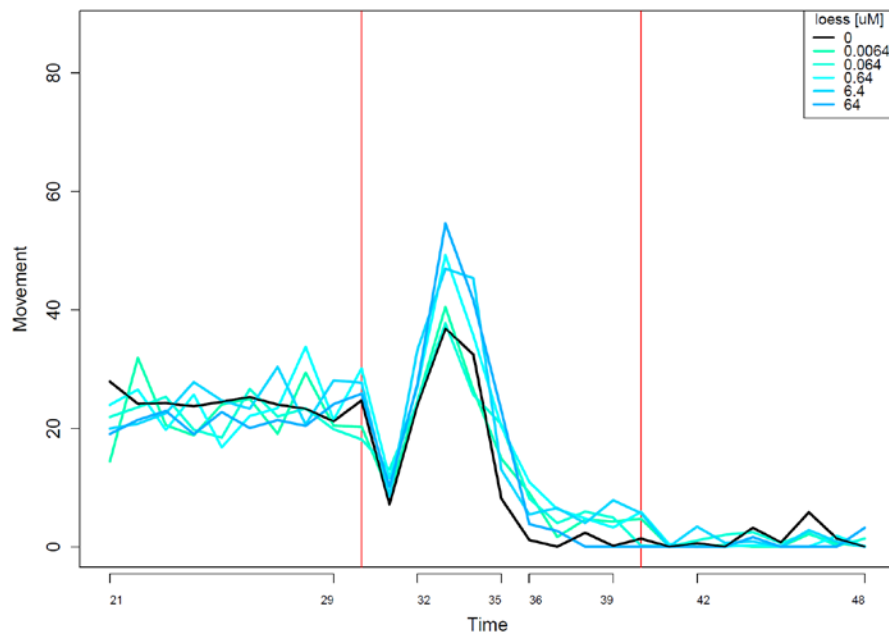


**p-Bromodiphenyl ether (BDE-3)**

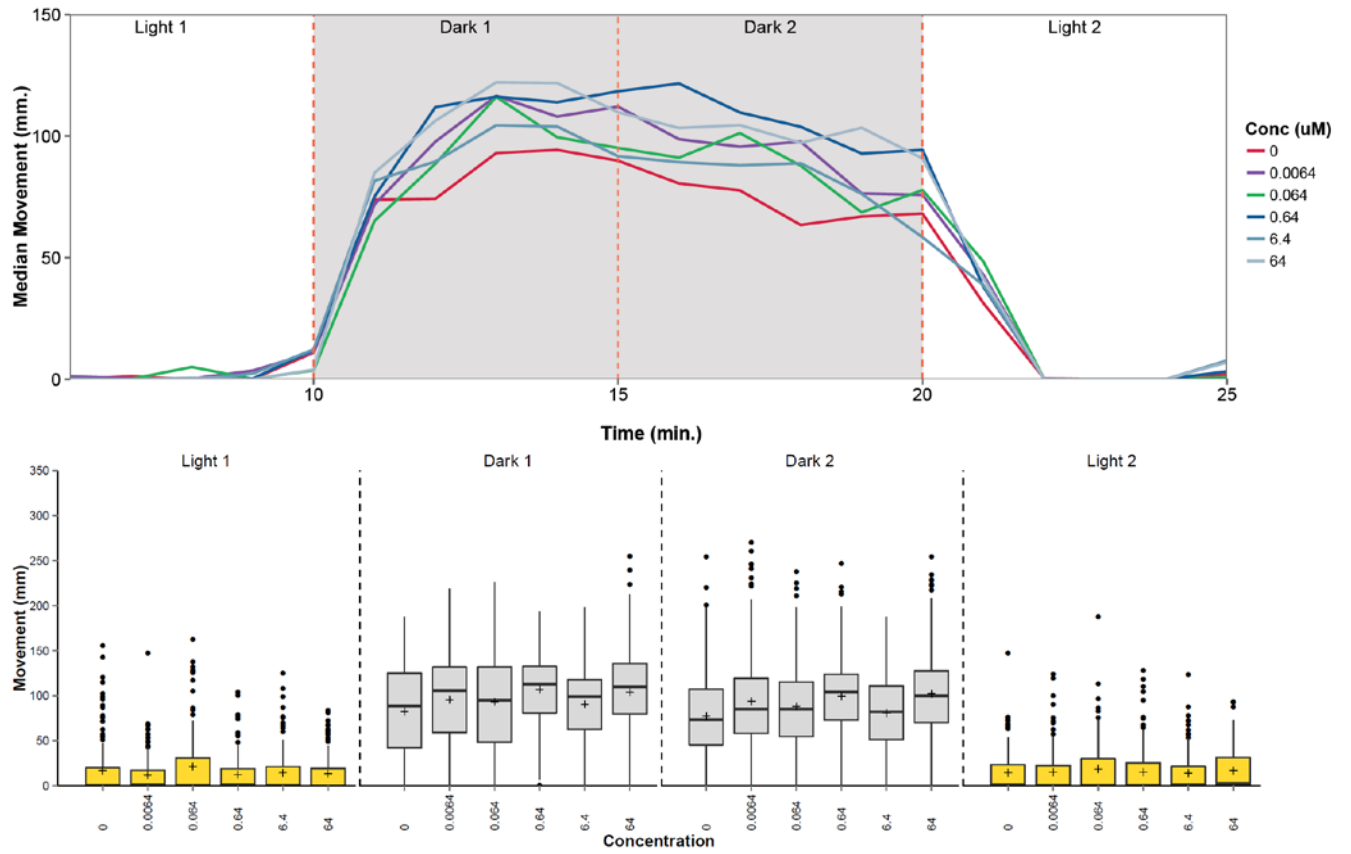
***BDE-3: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***BDE-3: Zebrafish embryo PRAT results at 24 hpf***

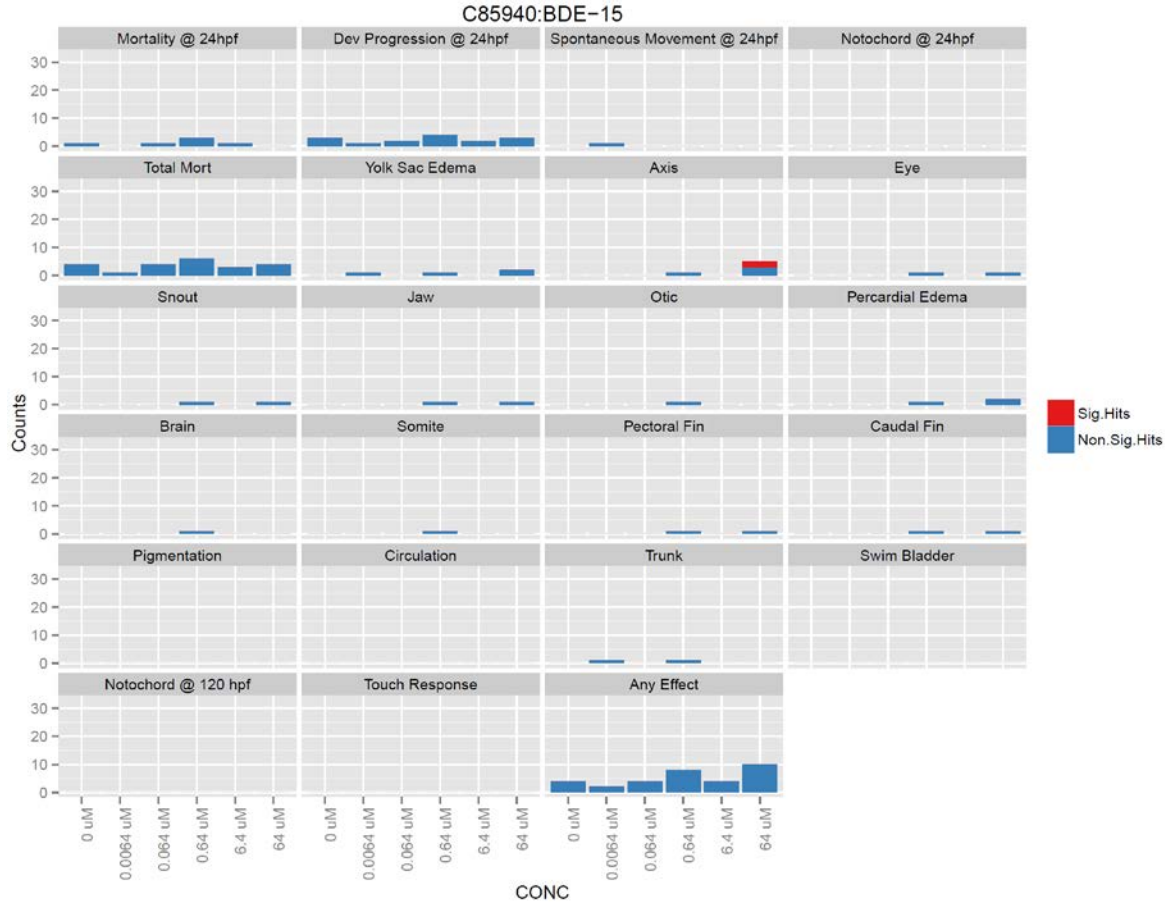


**BDE-3: Zebrafish larvae PMR assay results at 120 hpf**

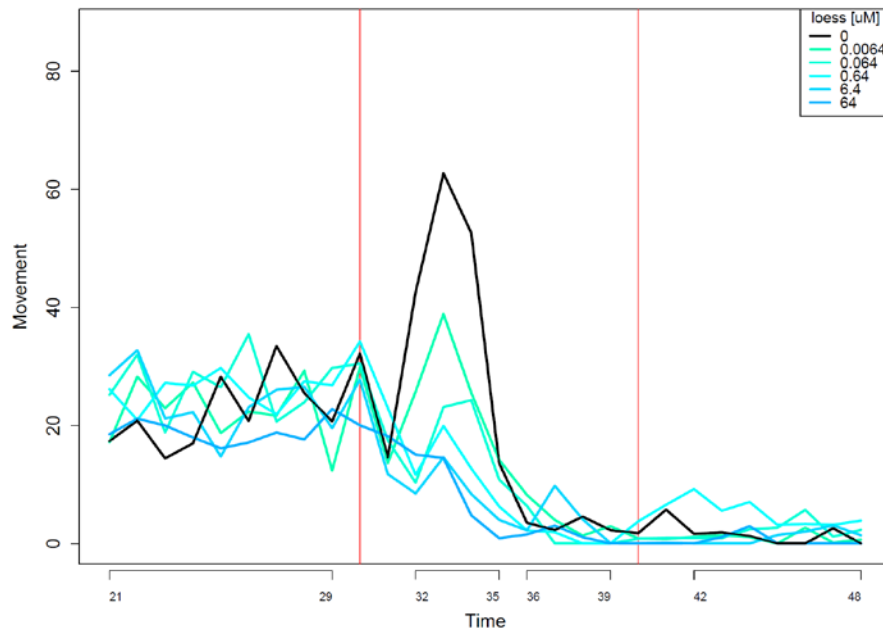


**p,p-Dibromodiphenyl ether (BDE-15)**

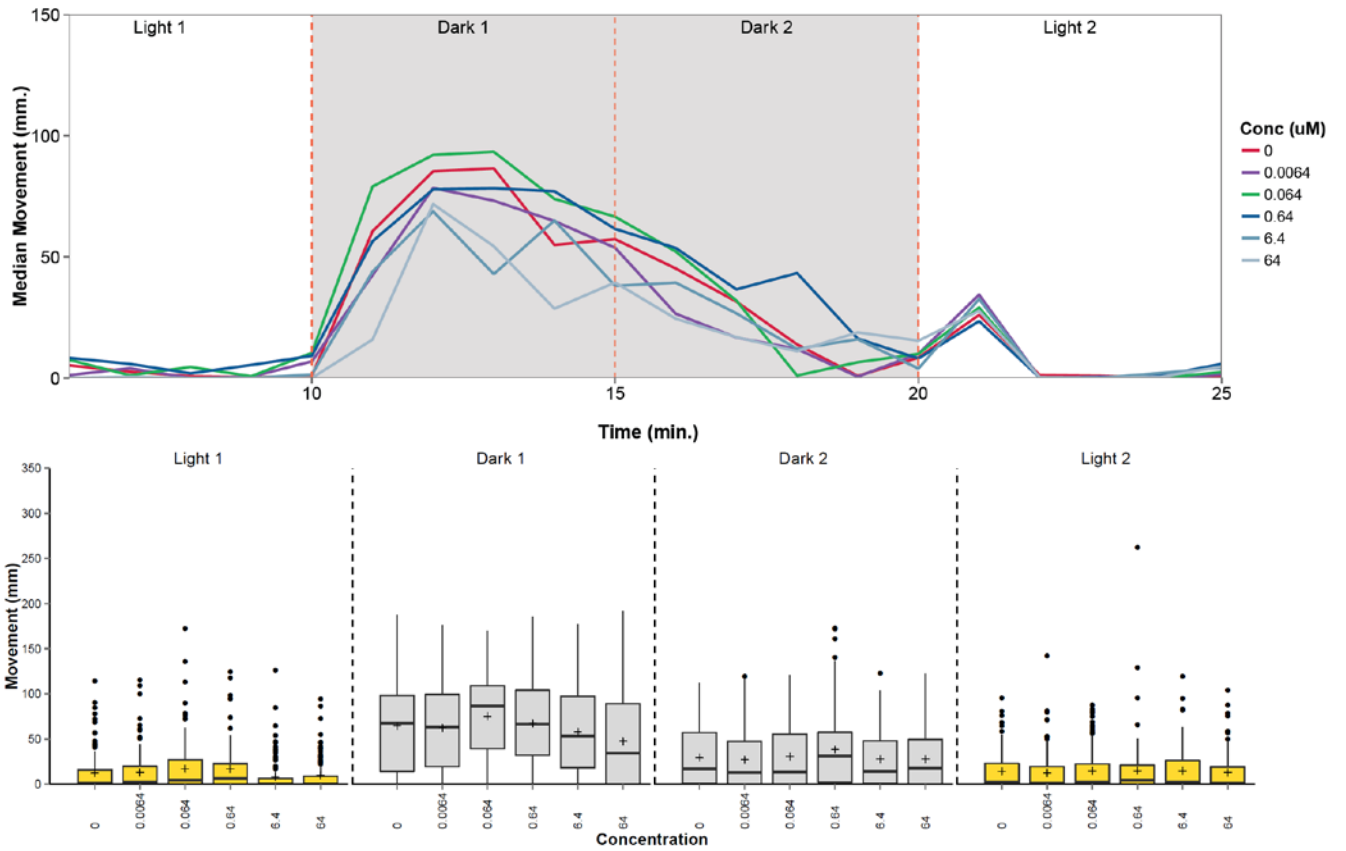
***BDE-15: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***BDE-15: Zebrafish embryo PRAT results at 24 hpf***

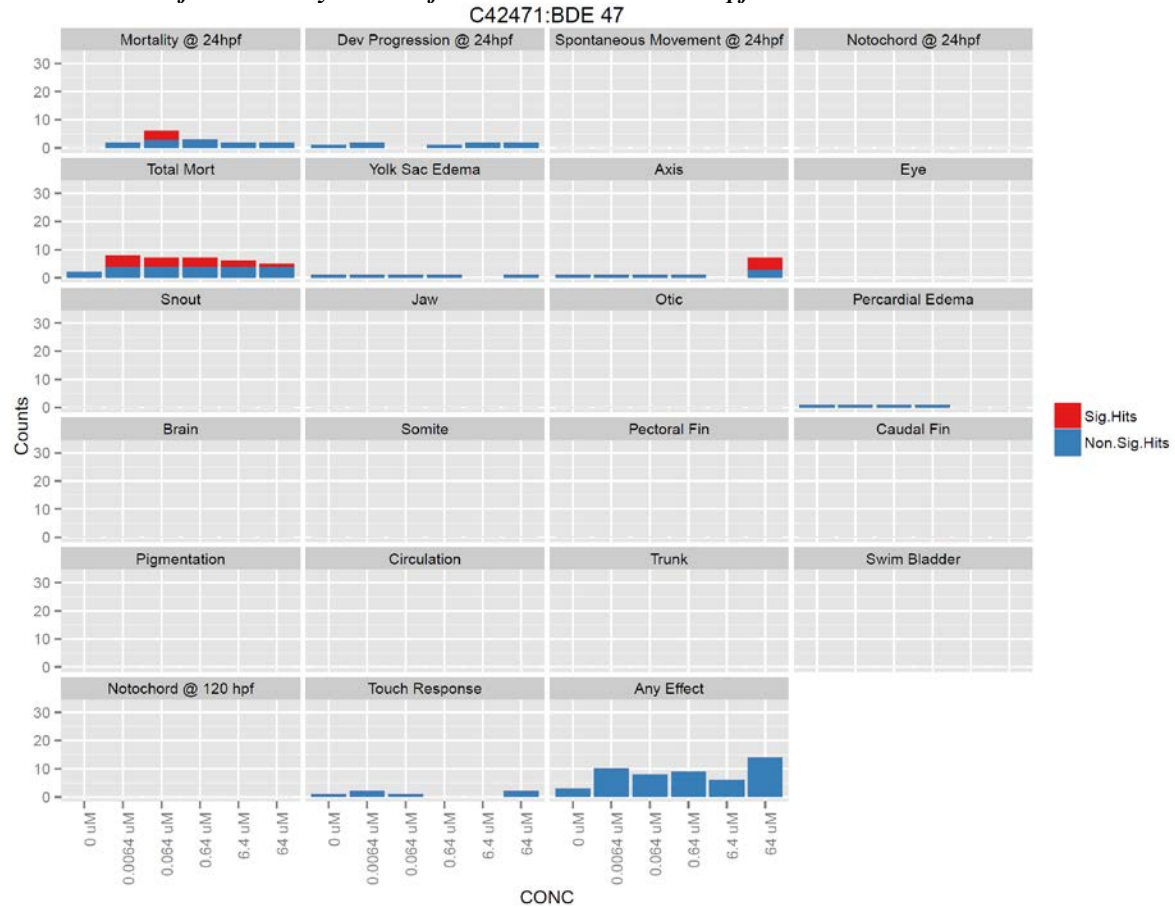


**BDE-15: Zebrafish larvae PMR assay results at 120 hpf**

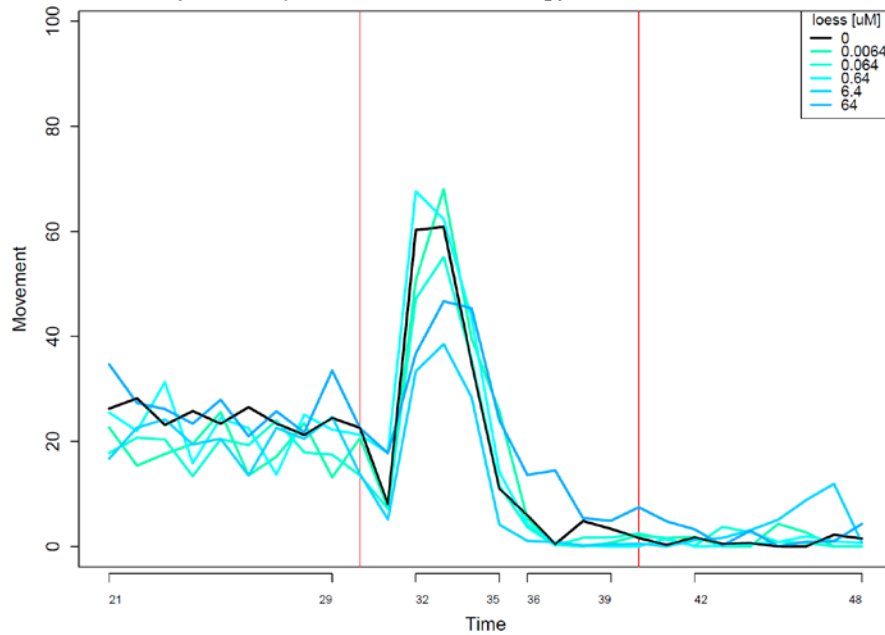


**2,2',4,4'-Tetrabromodiphenyl ether (BDE-47)**

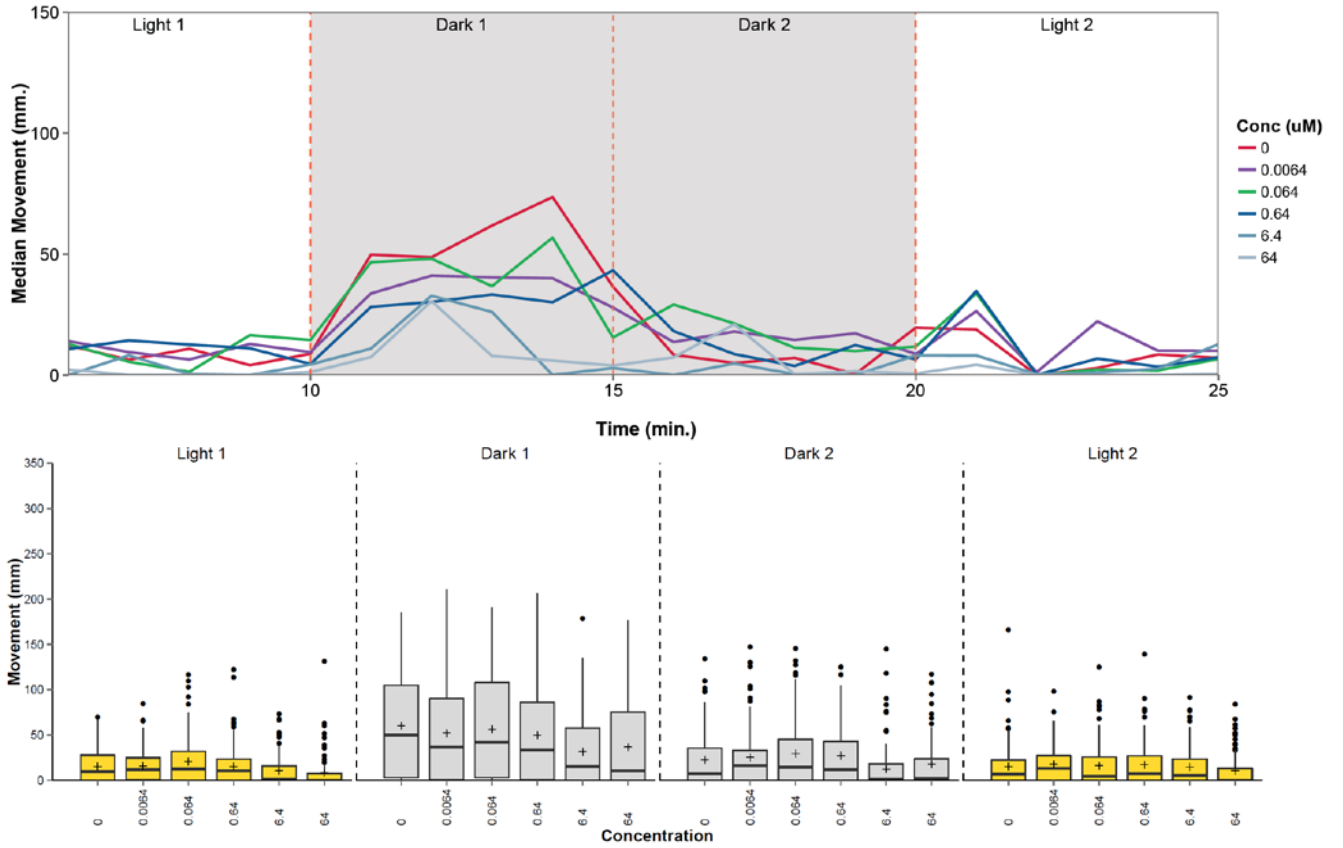
***BDE-47: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***BDE-47: Zebrafish embryo PRAT results at 24 hpf***



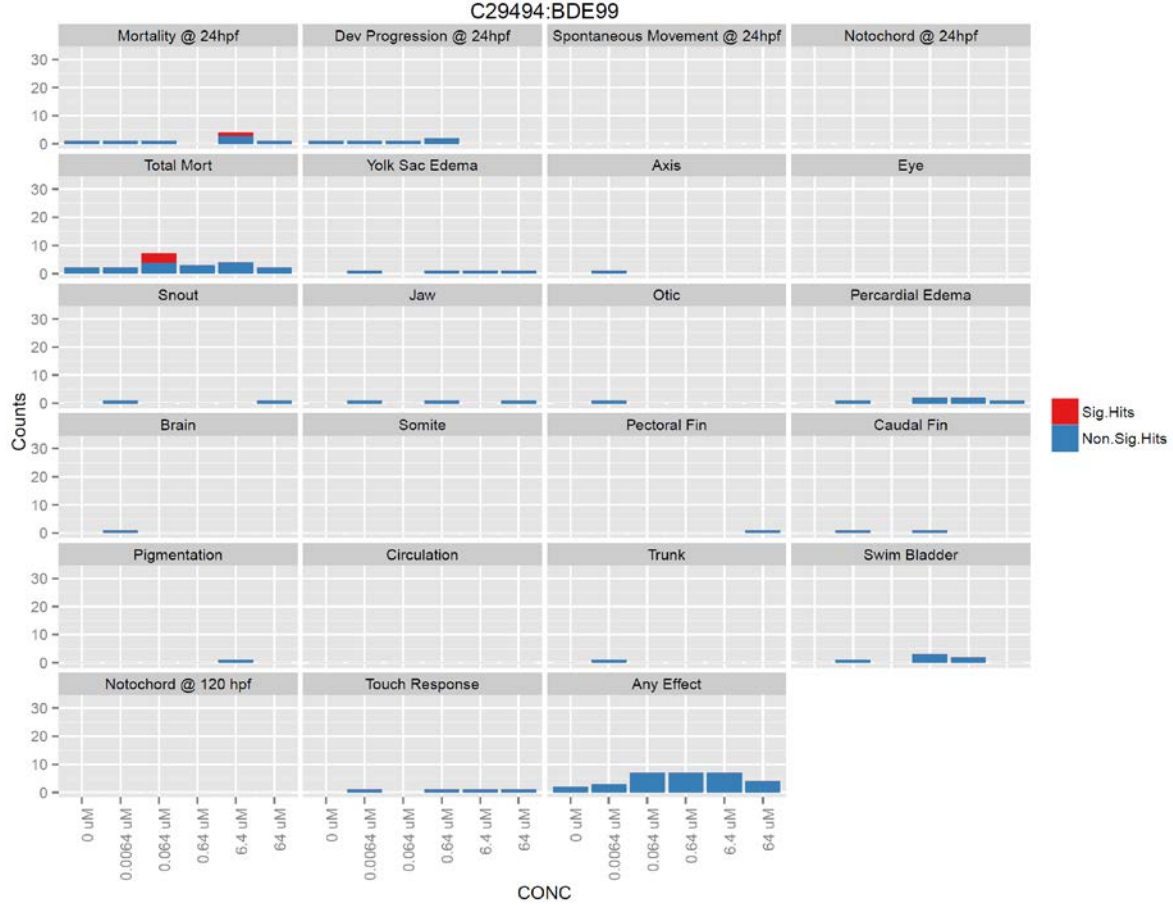
**BDE-47: Zebrafish larvae PMR assay results at 120 hpf**



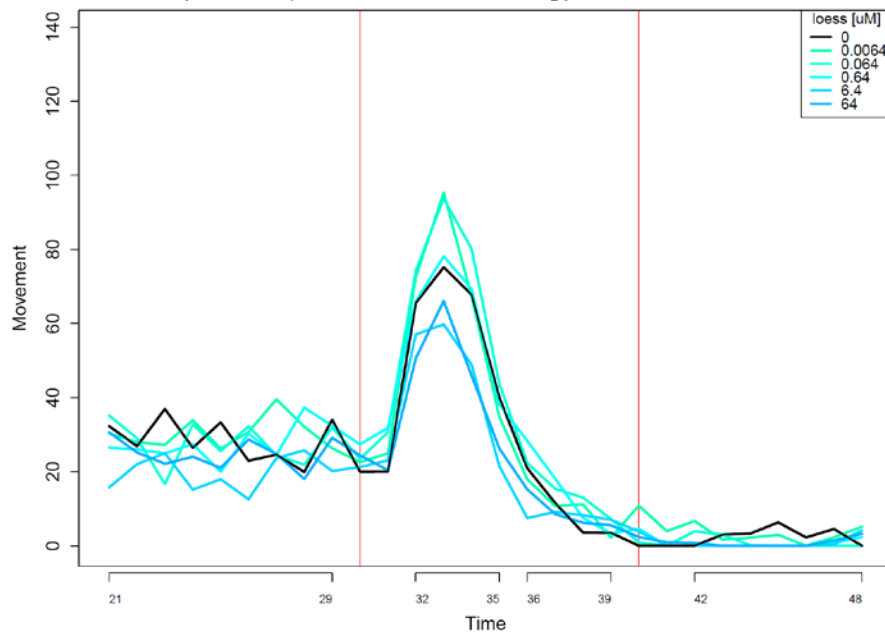


**2,2',4,4',5-Pentabromodiphenyl ether (BDE-99)**

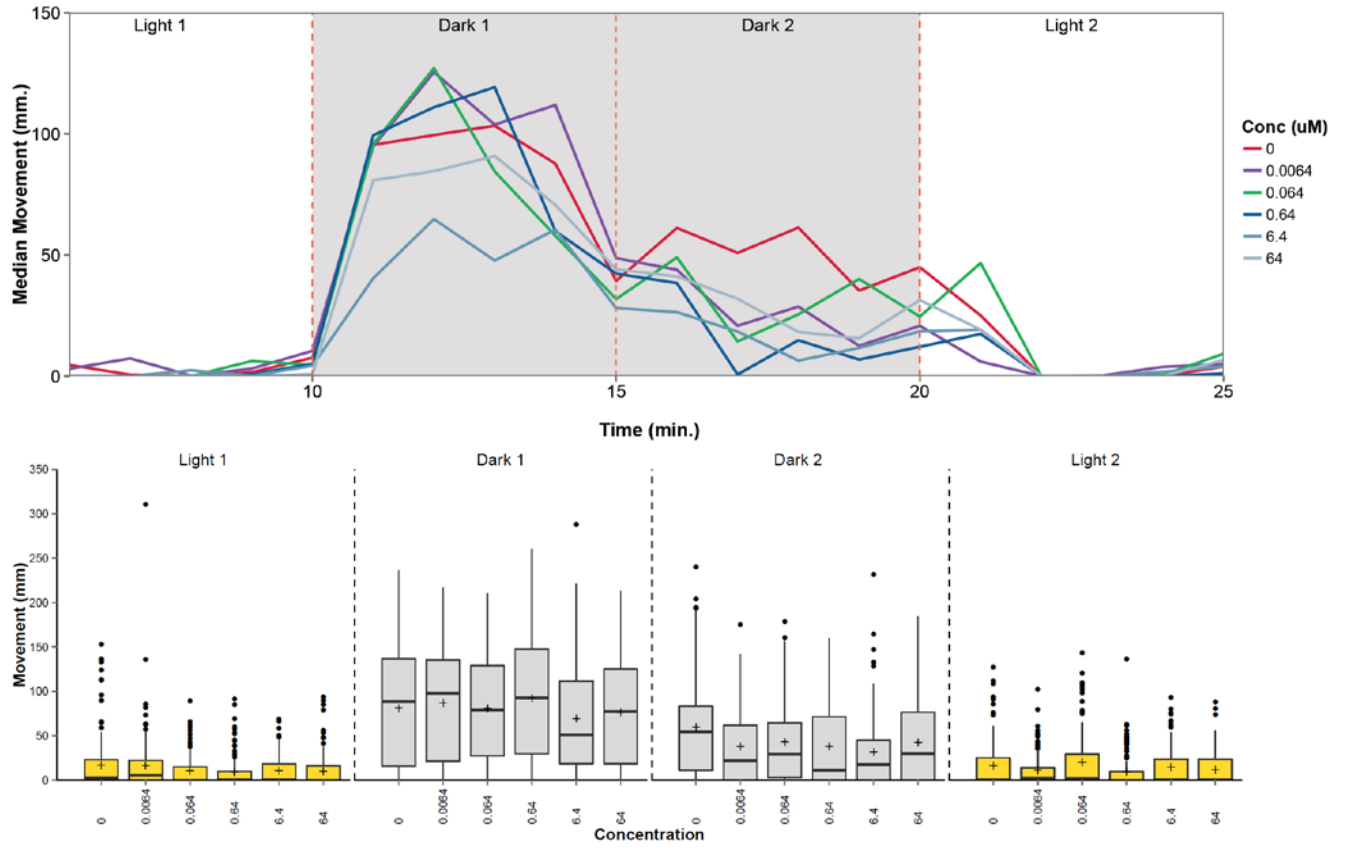
**BDE-99: Zebrafish Mortality and Malformations at 24 and 120 hpf**



**BDE-99: Zebrafish embryo PRAT results at 24 hpf**

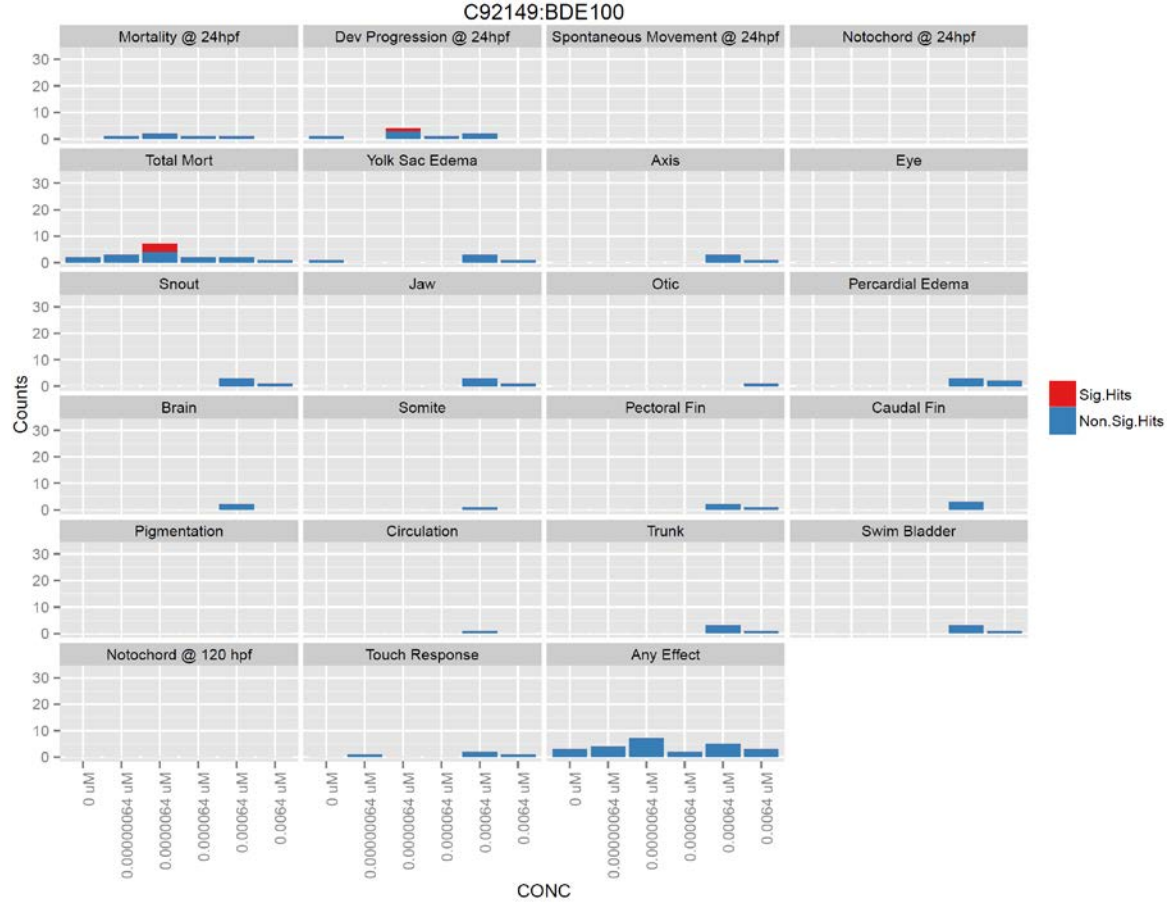


**BDE-99: Zebrafish larvae PMR assay results at 120 hpf**

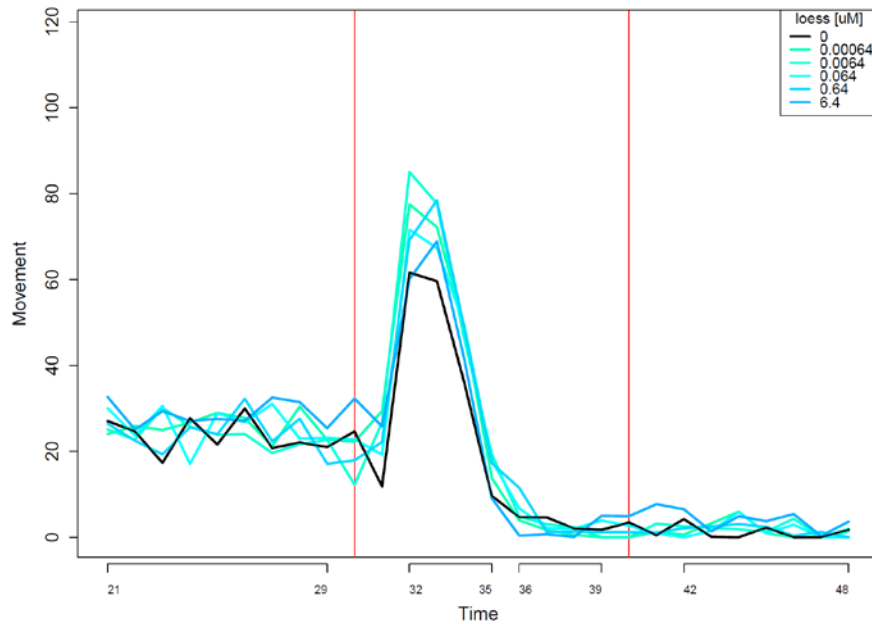


**2,2',4,4',6-Pentabromodiphenyl ether (BDE-100)**

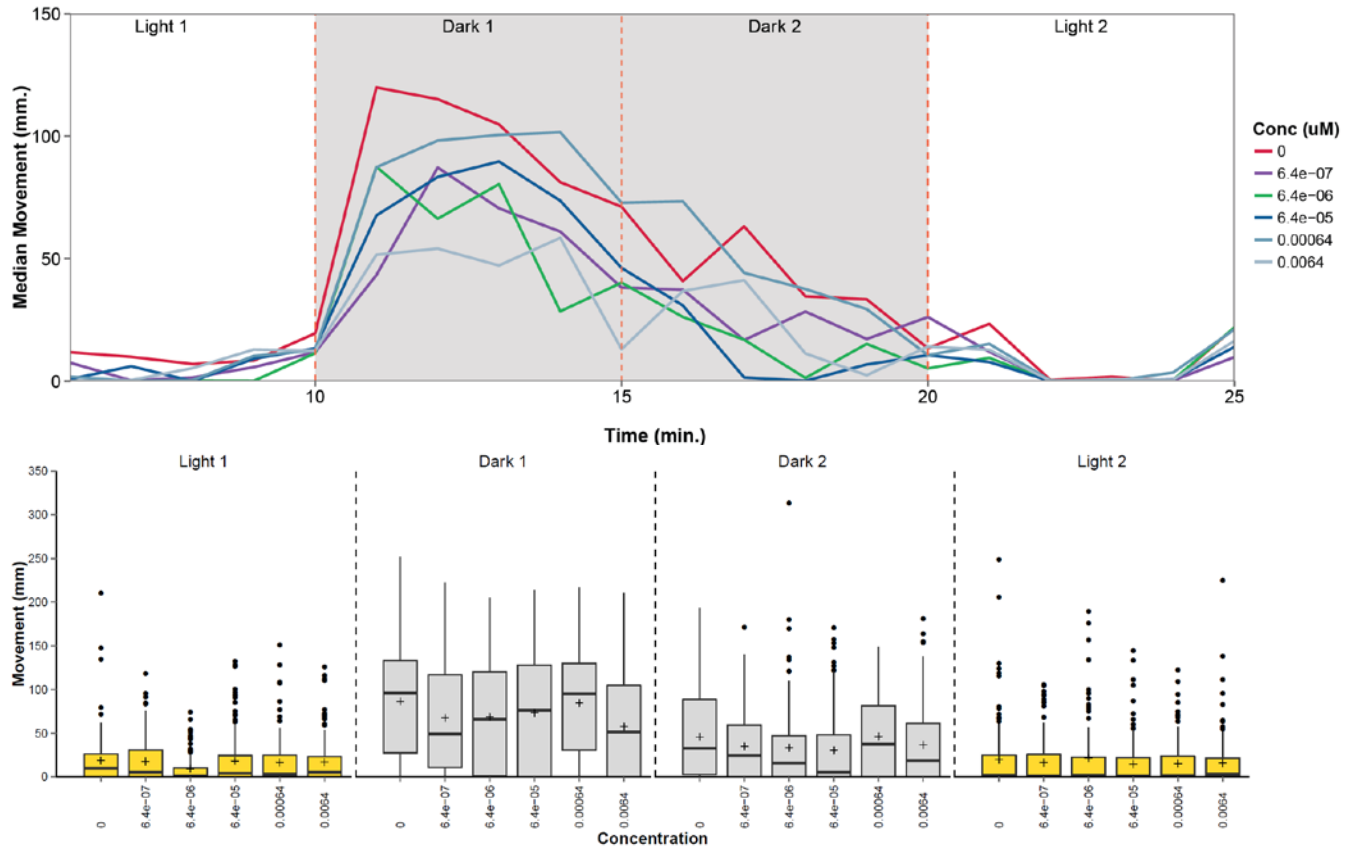
***BDE-100: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***BDE-100: Zebrafish embryo PRAT results at 24 hpf***

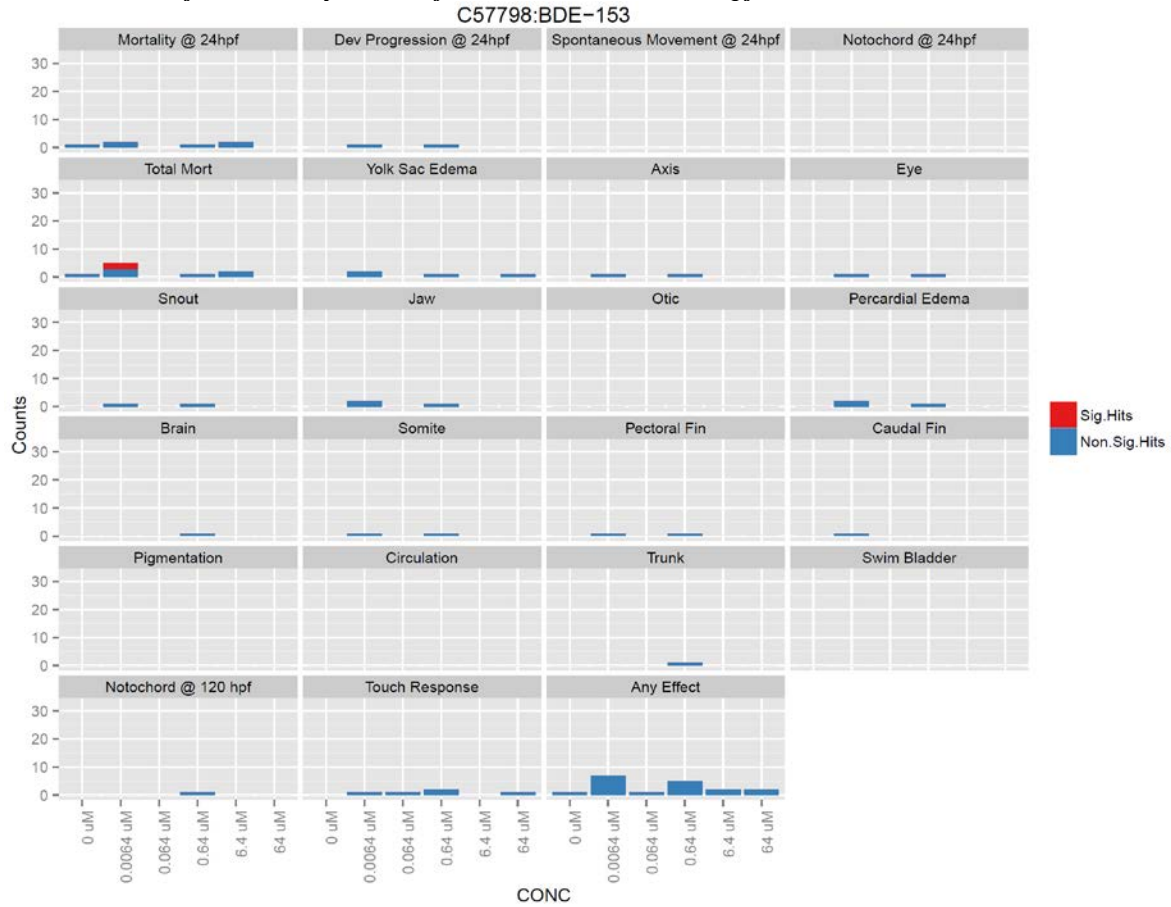


**BDE-100: Zebrafish larvae PMR assay results at 120 hpf**

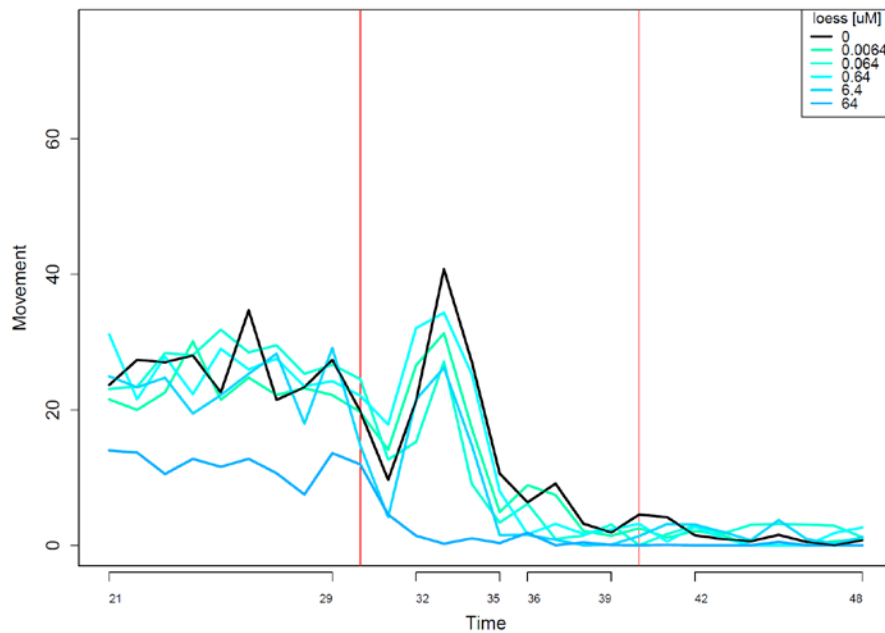


**2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE-153)**

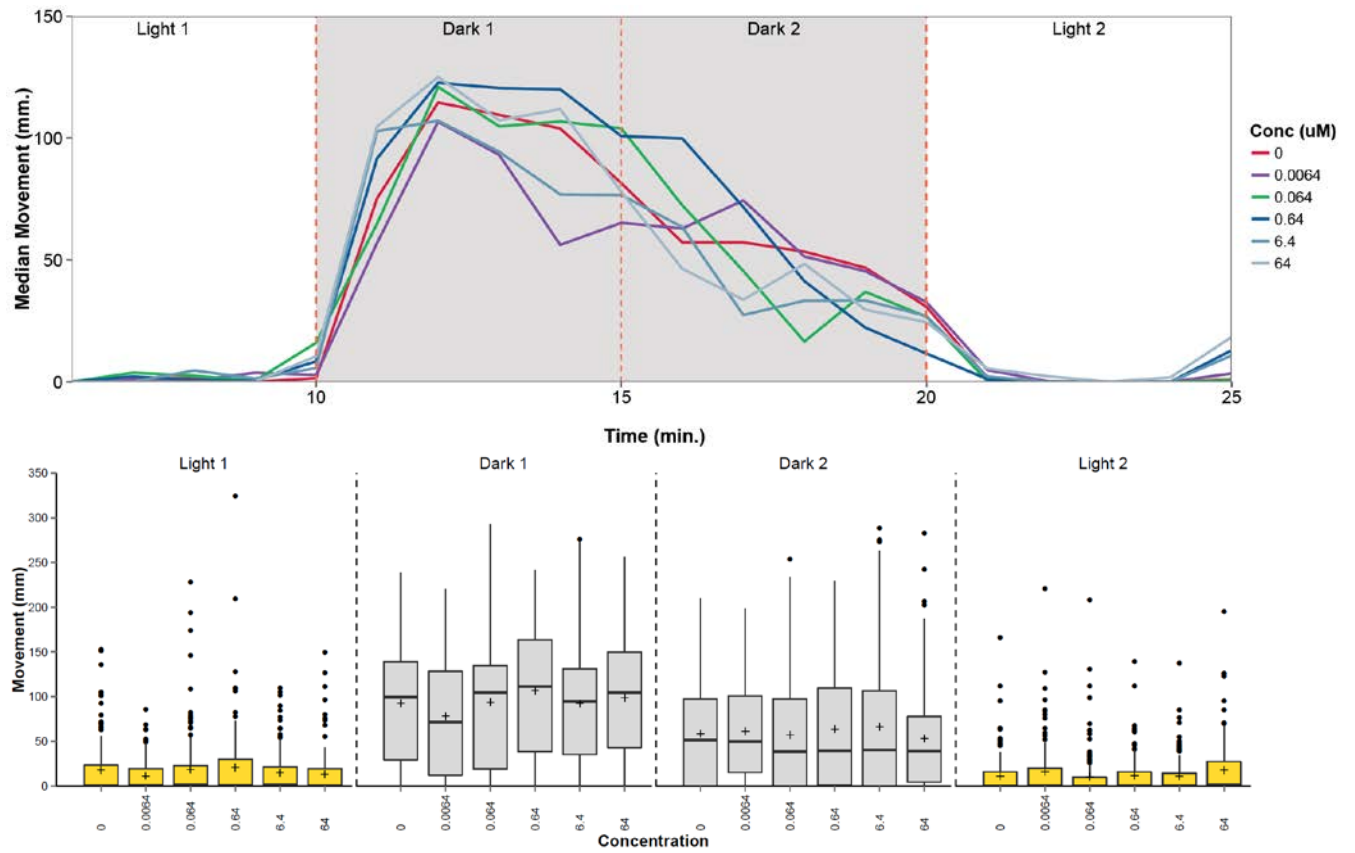
**BDE-153: Zebrafish Mortality and Malformations at 24 and 120 hpf**



**BDE-153: Zebrafish embryo PRAT results at 24 hpf**



**BDE-153: Zebrafish larvae PMR assay results at 120 hpf**

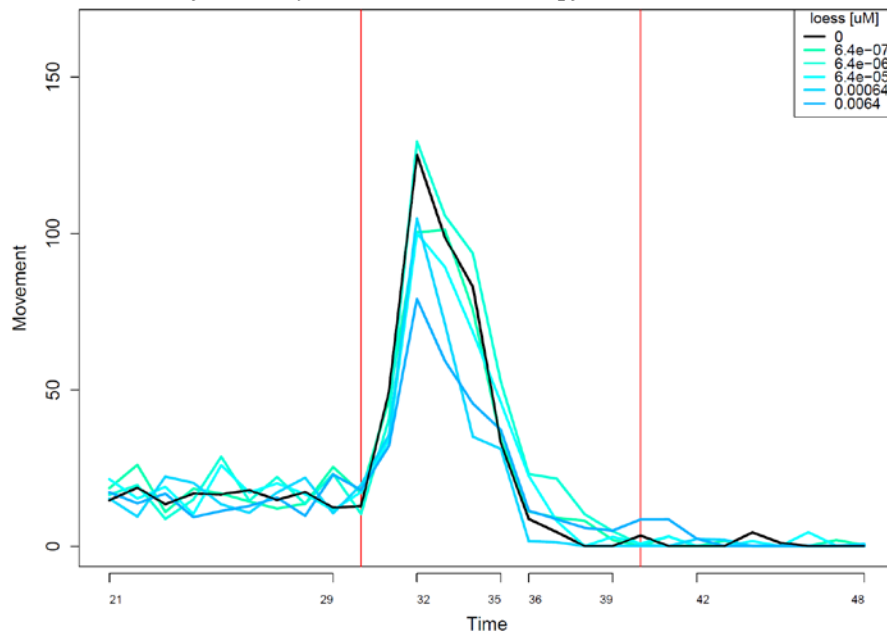


**2,2',4,4',5,6'-Hexabromodiphenyl ether (BDE-154)**

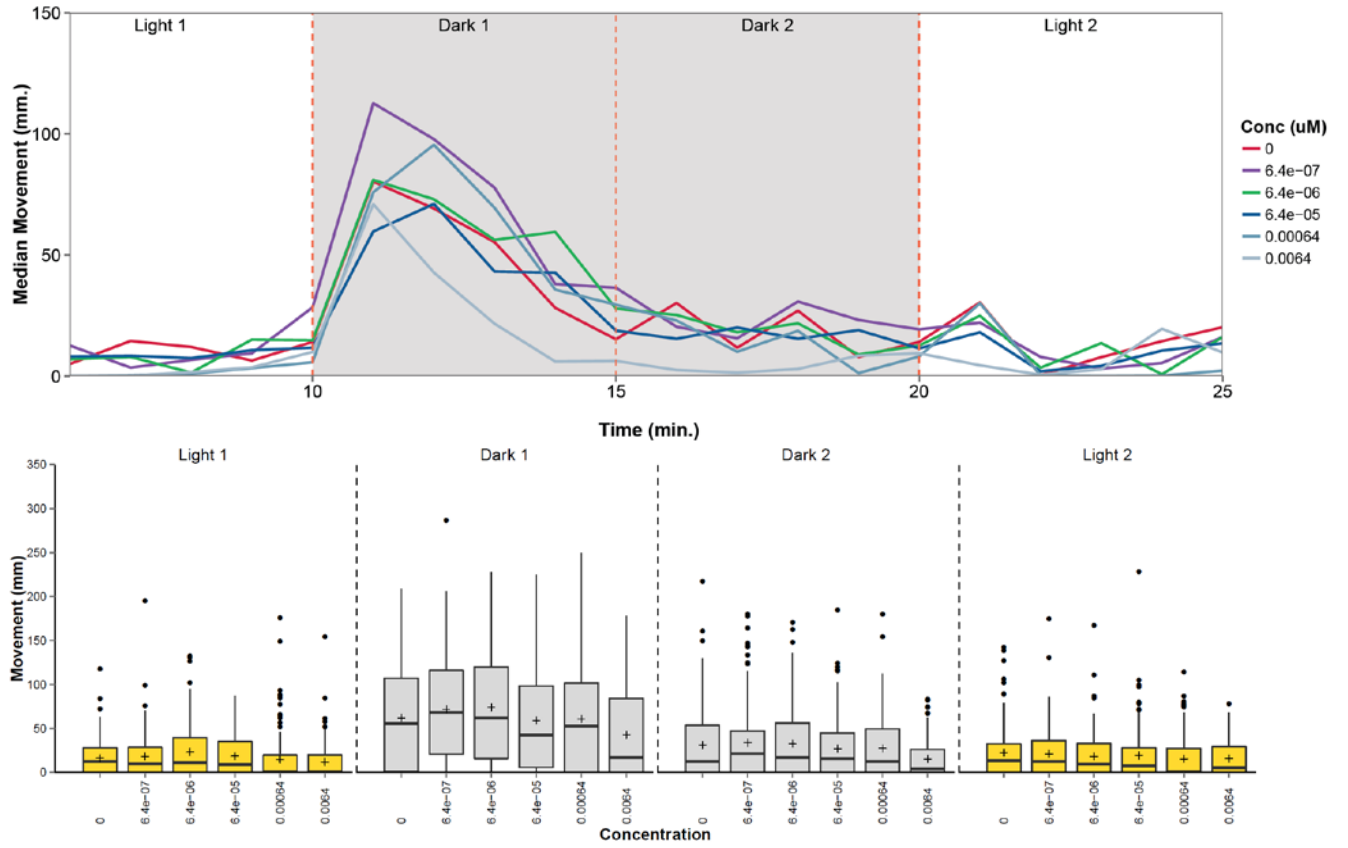
**BDE-154: Zebrafish Mortality and Malformations at 24 and 120 hpf**



**BDE-154: Zebrafish embryo PRAT results at 24 hpf**



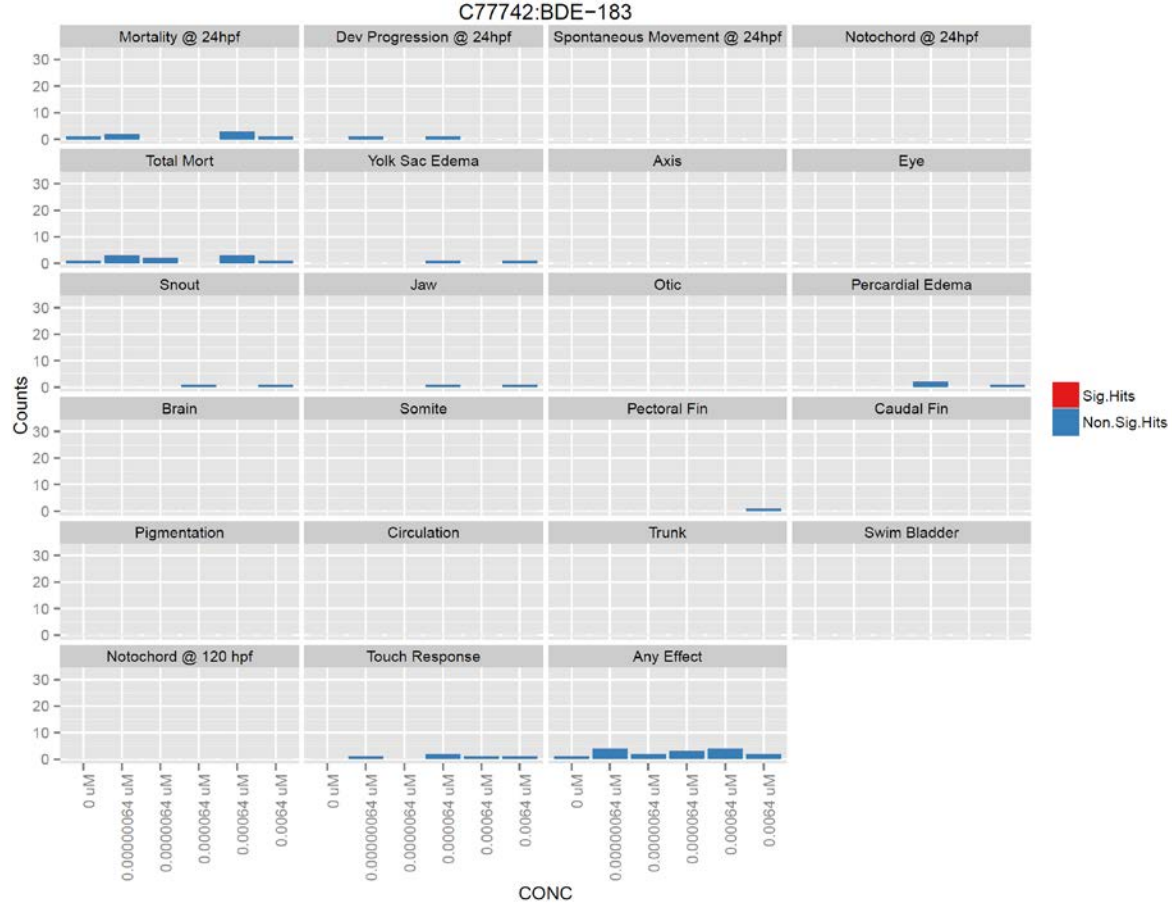
**BDE-154: Zebrafish larvae PMR assay results at 120 hpf**



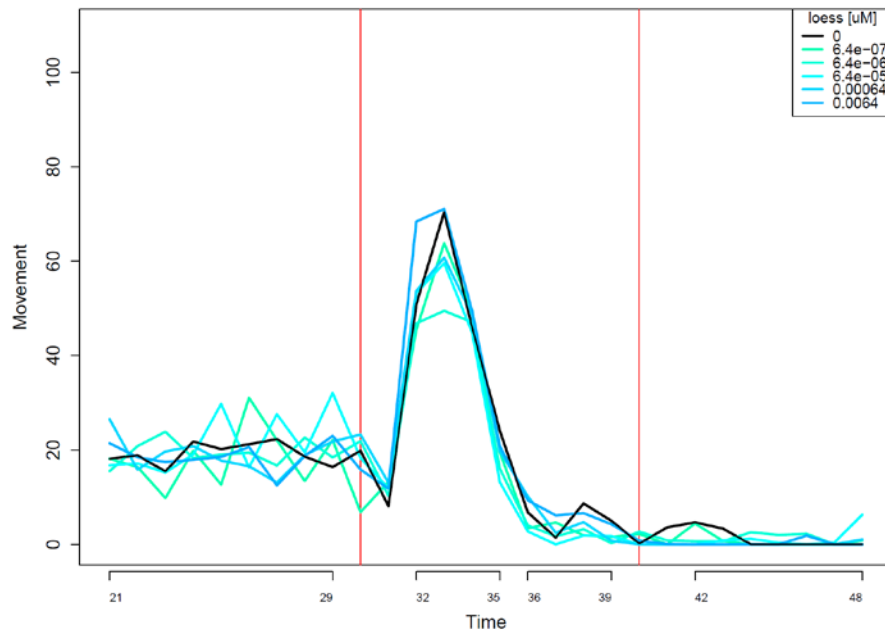


**2,2',3,4,4',5',6-Heptabromodiphenyl ether (BDE-183)**

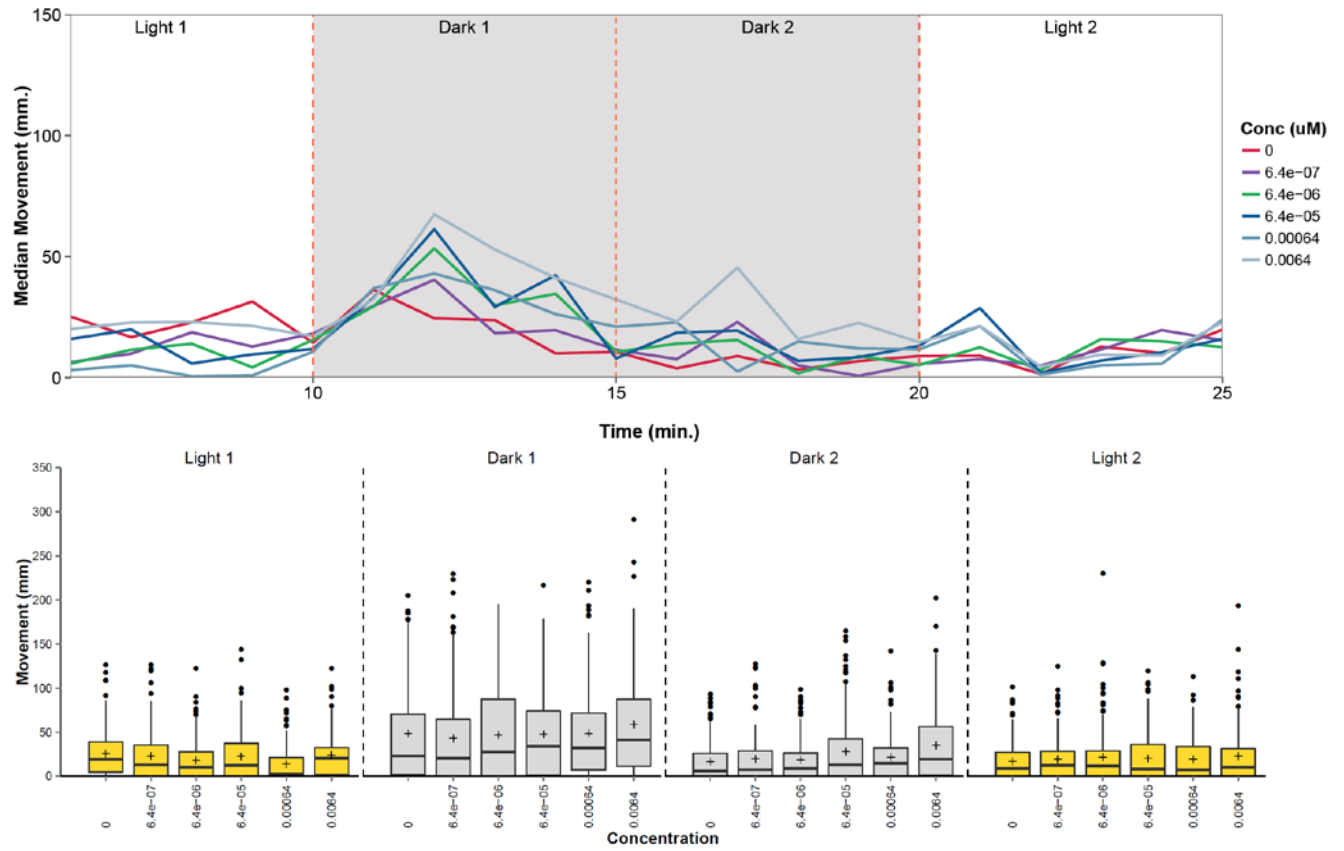
***BDE-183: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***BDE-183: Zebrafish embryo PRAT results at 24 hpf***

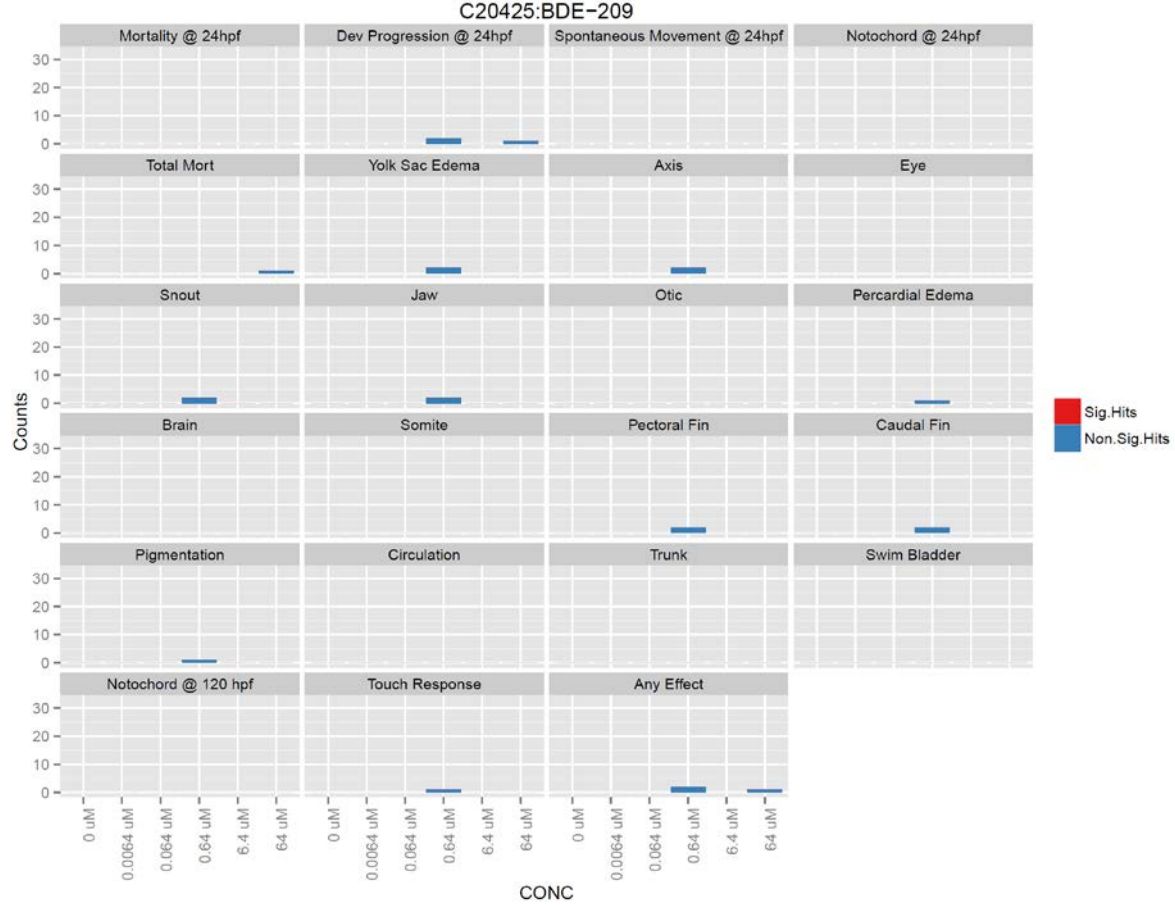


**BDE-183: Zebrafish larvae PMR assay results at 120 hpf**

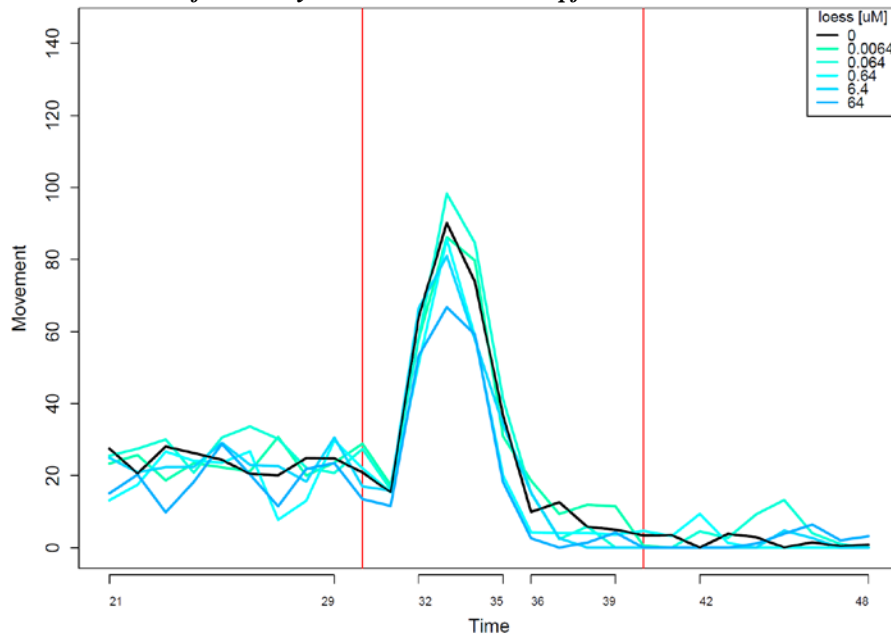


**Decabromodiphenyl ether (BDE-209)**

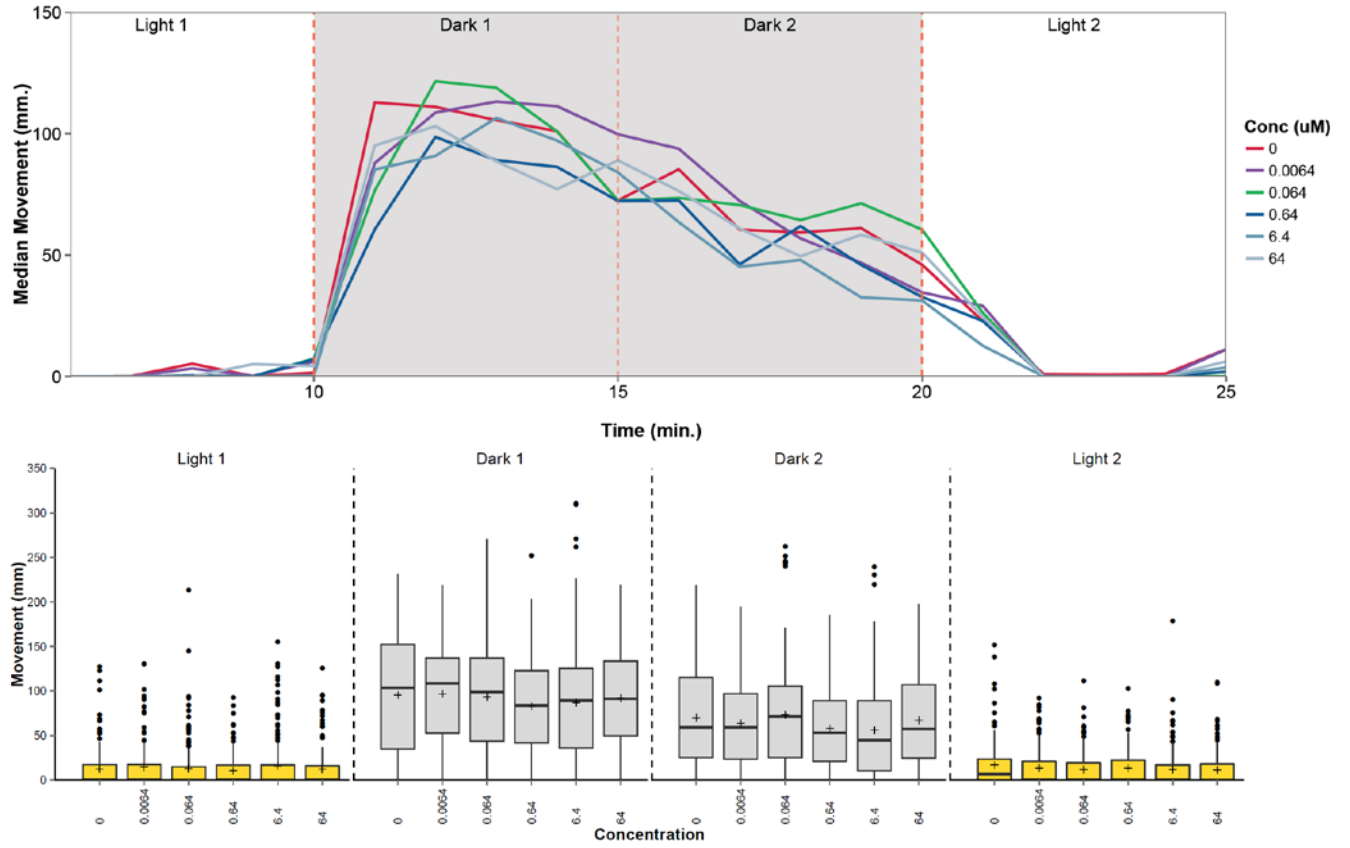
***BDE-209: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***BDE-209: Zebrafish embryo PRAT results at 24 hpf***

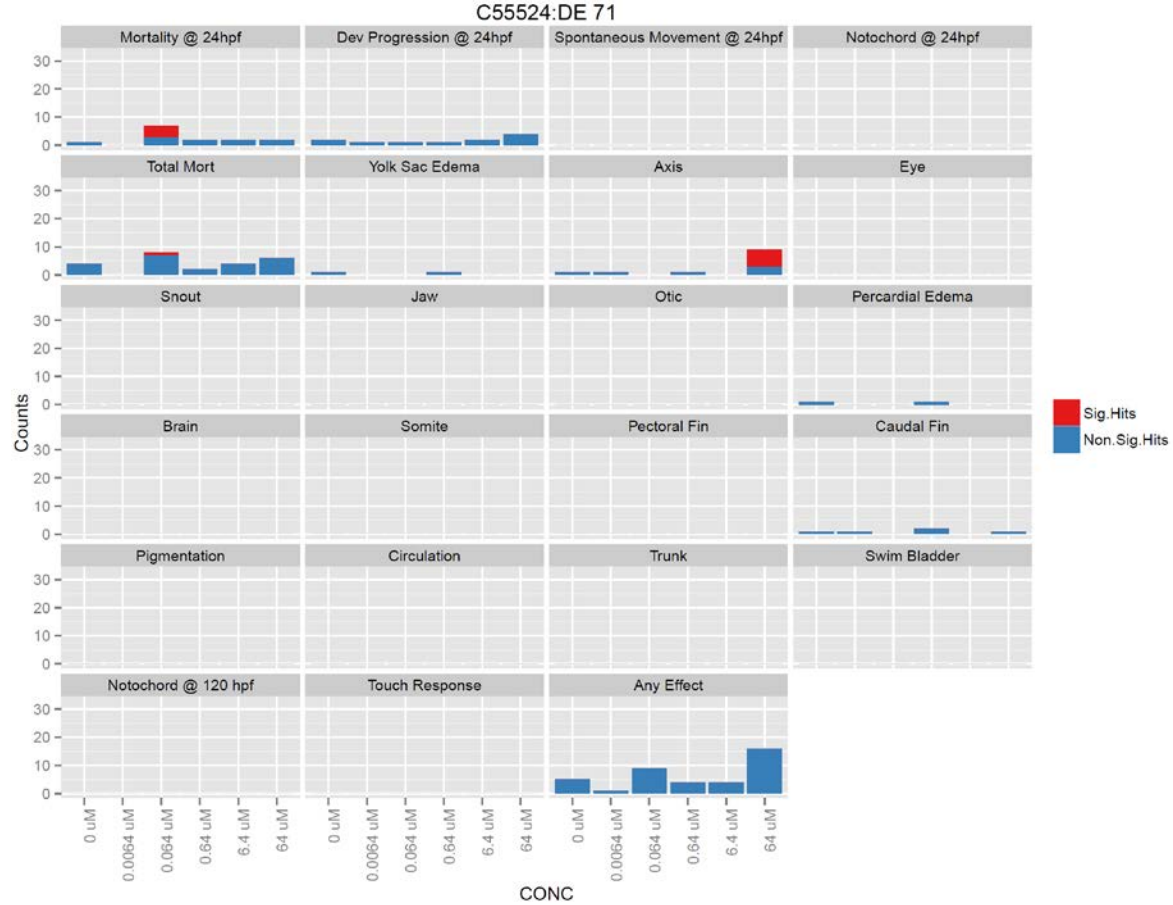


**BDE-209: Zebrafish larvae PMR assay results at 120 hpf**

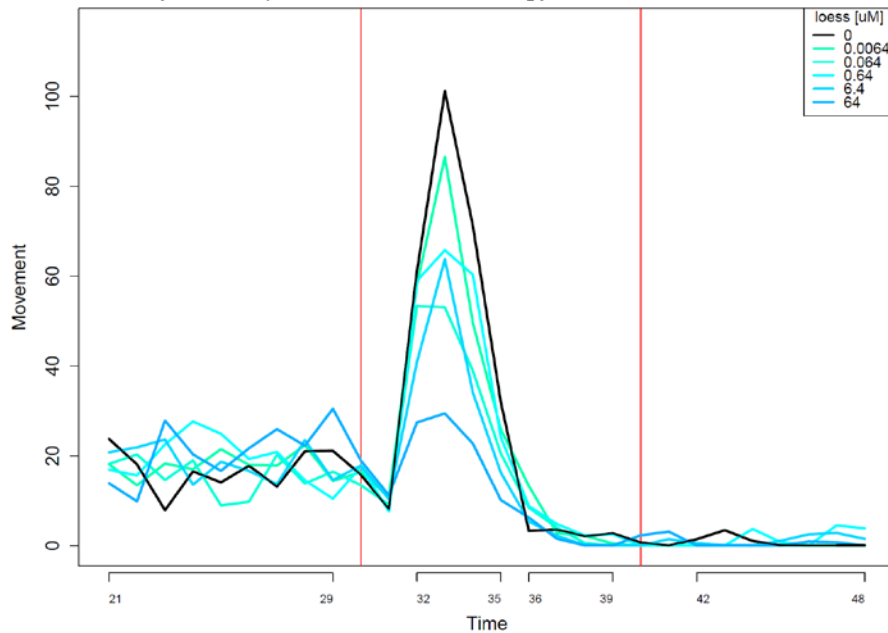


**PentaBDE commercial mixture (DE-71)**

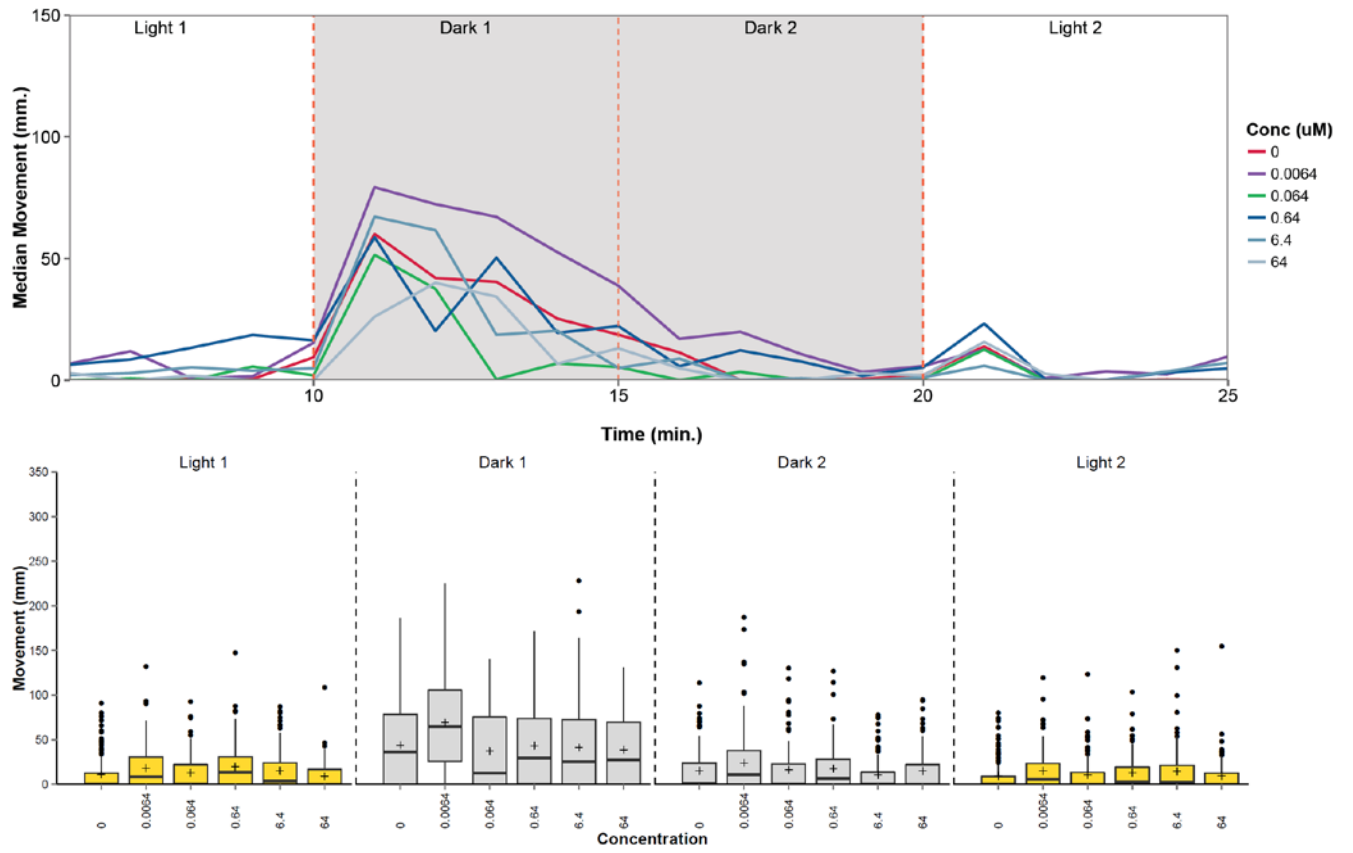
**DE-71: Zebrafish Mortality and Malformations at 24 and 120 hpf**



**DE-71: Zebrafish embryo PRAT results at 24 hpf**

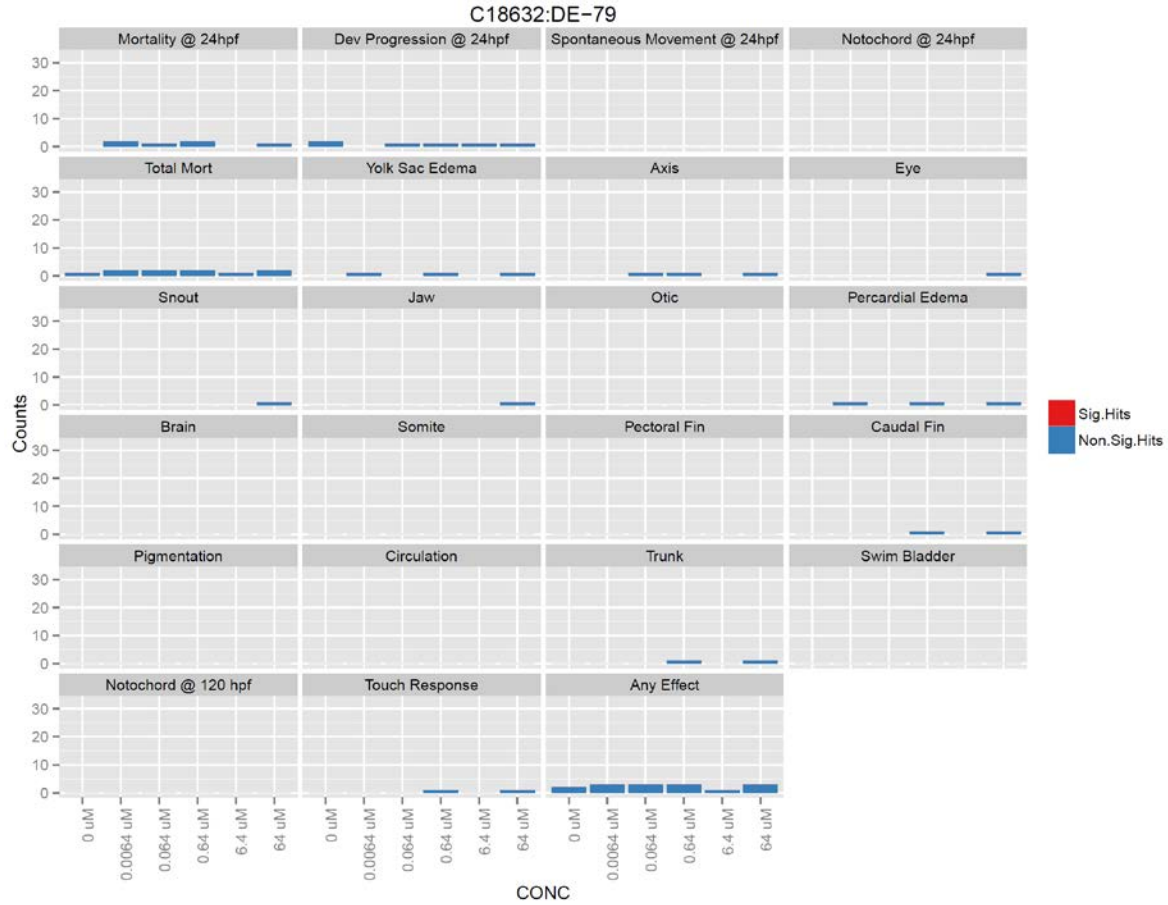


DE-71: Zebrafish larvae PMR assay results at 120 hpf

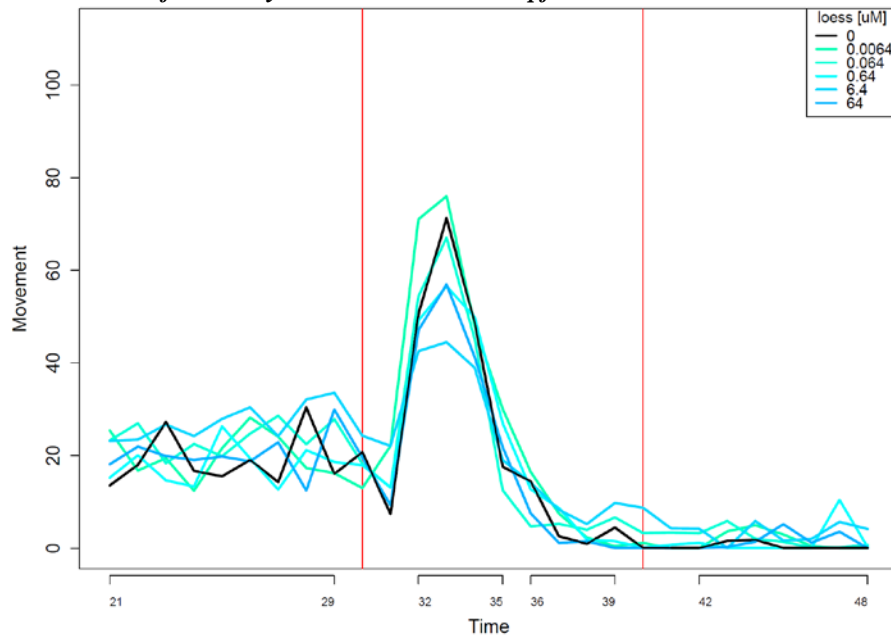


**OctaBDE commercial mixture (DE-79)**

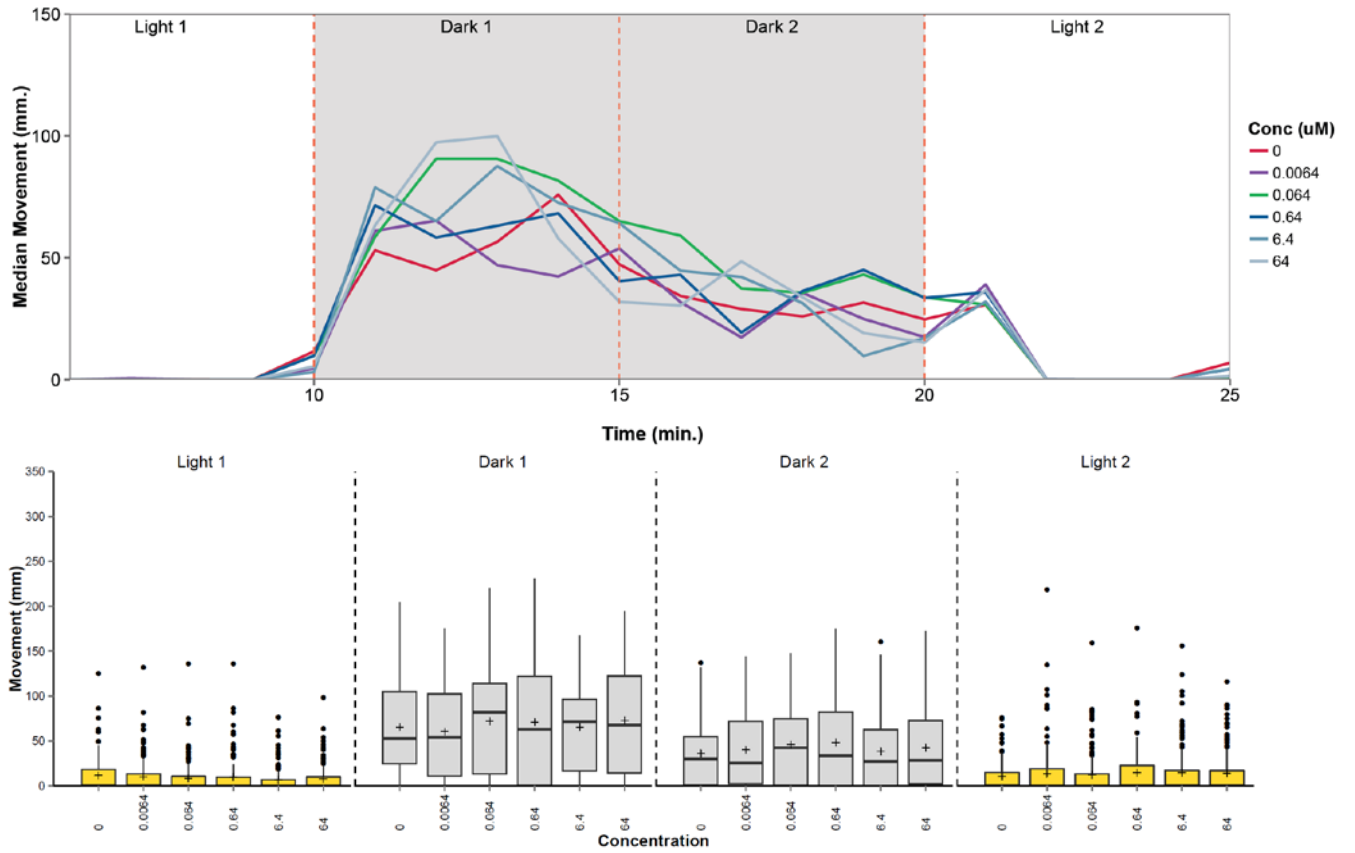
**DE-79: Zebrafish Mortality and Malformations at 24 and 120 hpf**



**DE-79: Zebrafish embryo PRAT results at 24 hpf**



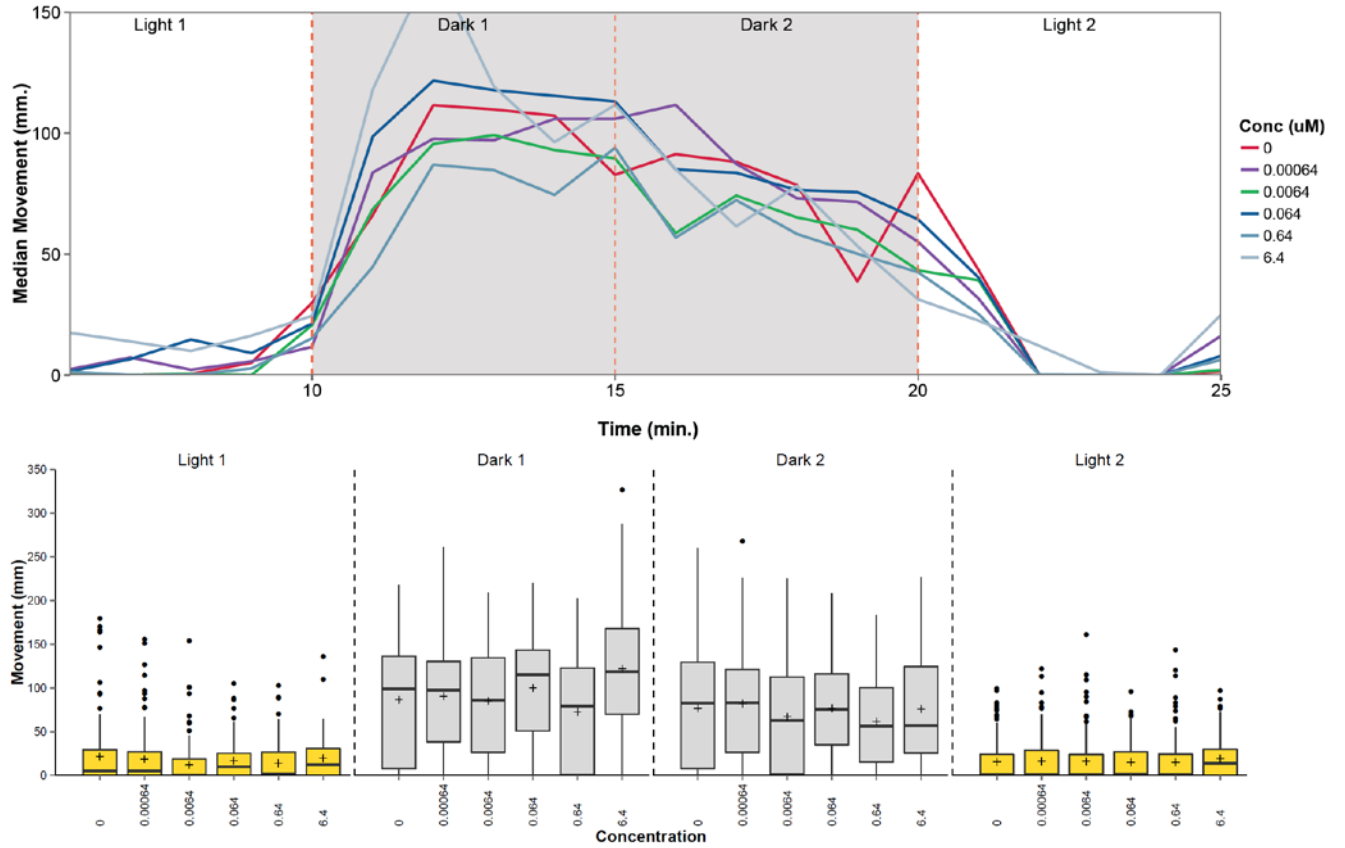
DE-79: Zebrafish larvae PMR assay results at 120 hpf





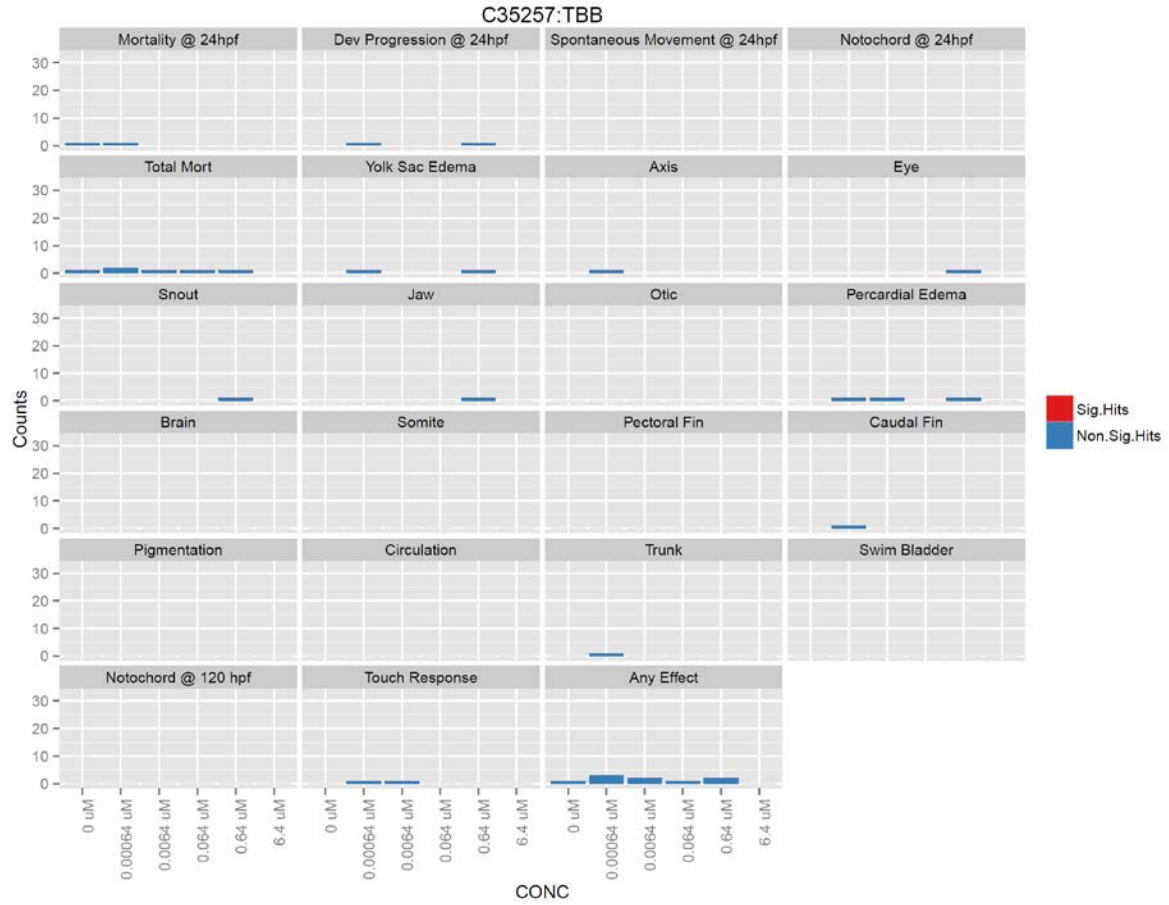


**HBCD: Zebrafish larvae PMR assay results at 120 hpf**

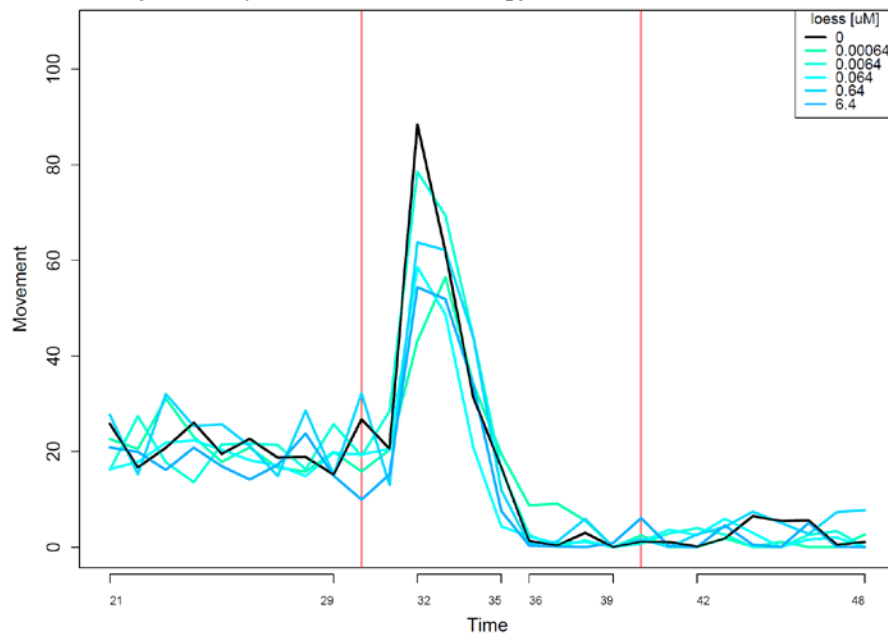


**2-ethylhexyl-tetrabromobenzoate (TBB)**

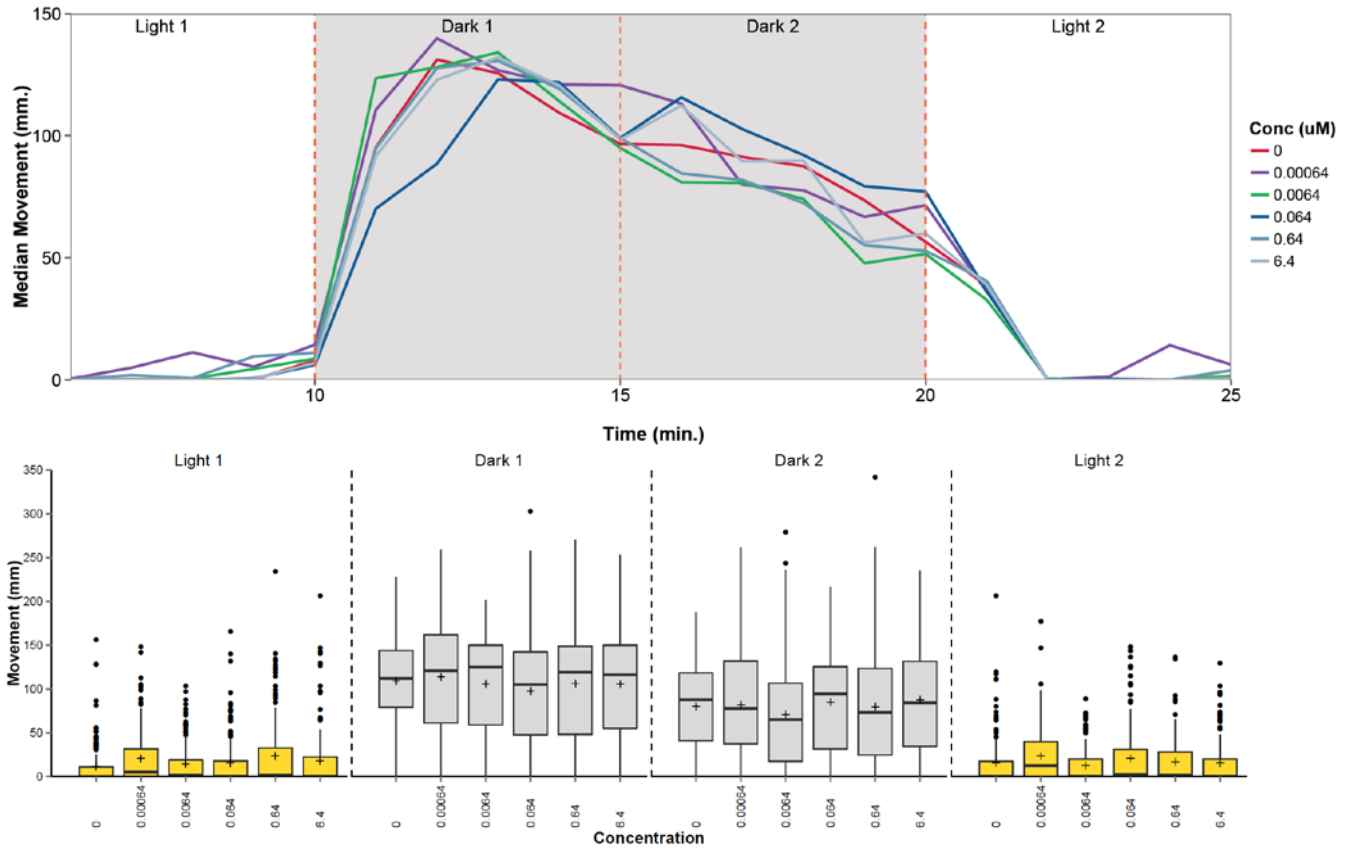
***TBB: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***TBB: Zebrafish embryo PRAT results at 24 hpf***

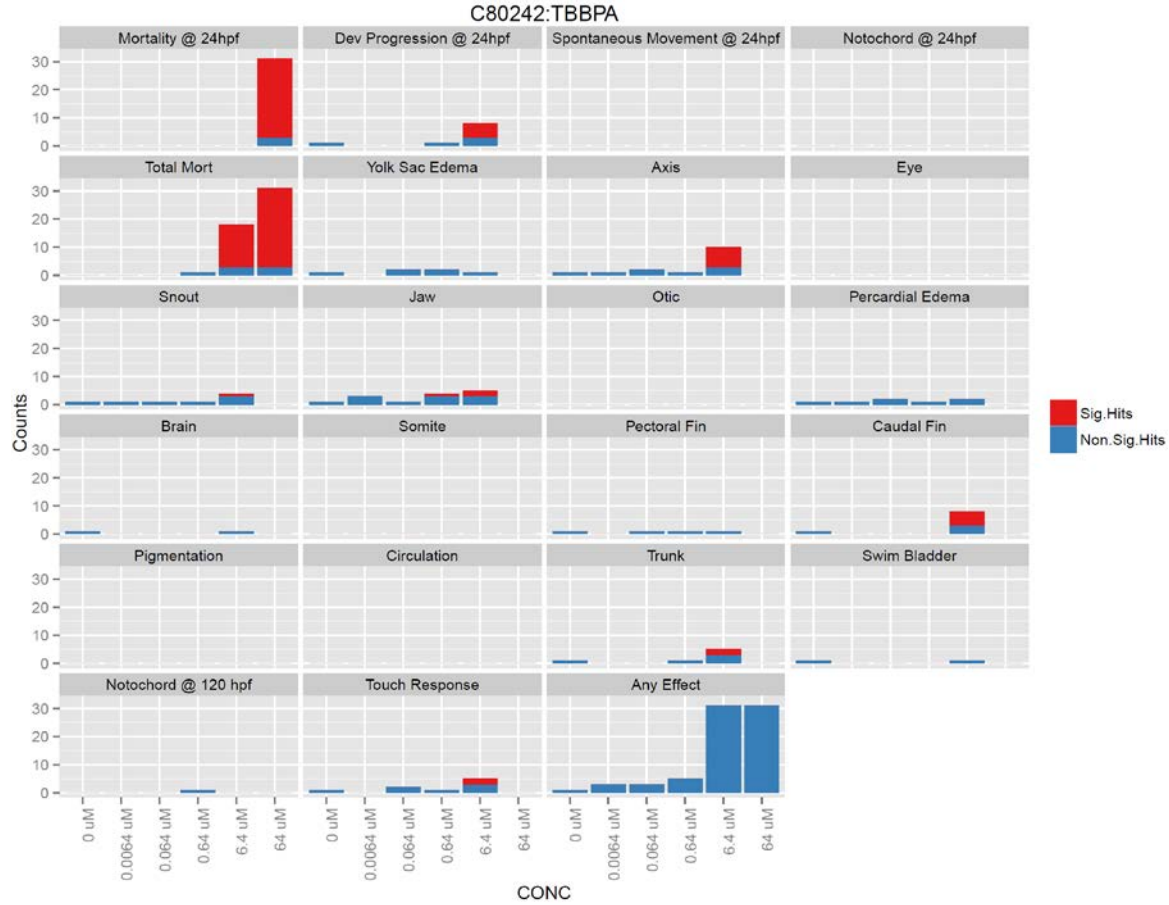


**TBB: Zebrafish larvae PMR assay results at 120 hpf**

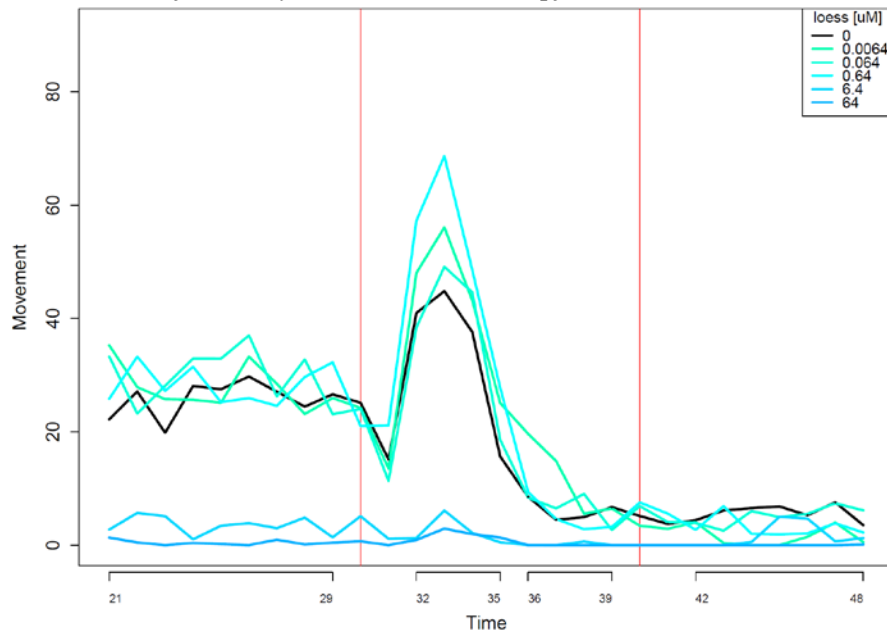


**3,3',5,5'-Tetrabromobisphenol A (TBBPA)**

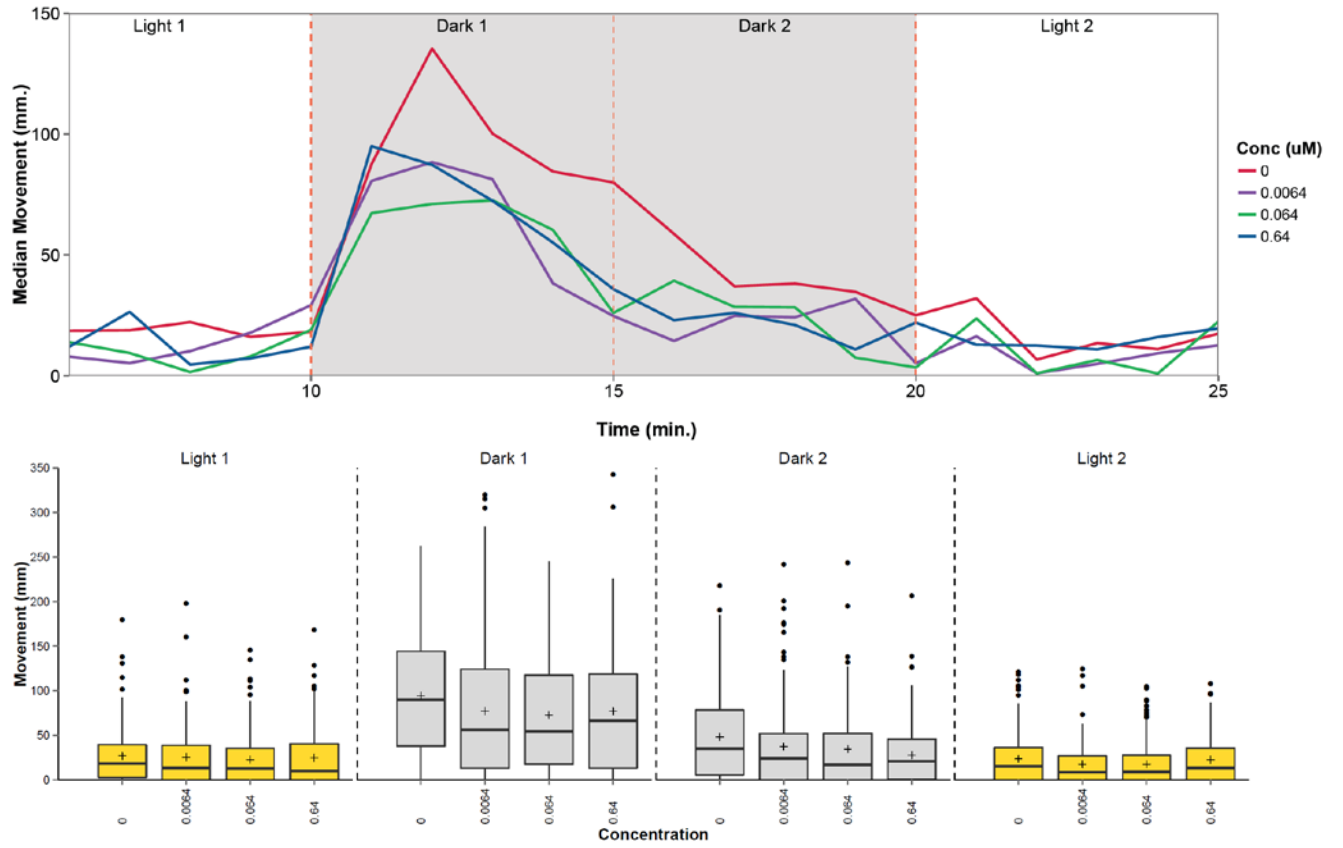
**TBBPA: Zebrafish Mortality and Malformations at 24 and 120 hpf**



**TBBPA: Zebrafish embryo PRAT results at 24 hpf**

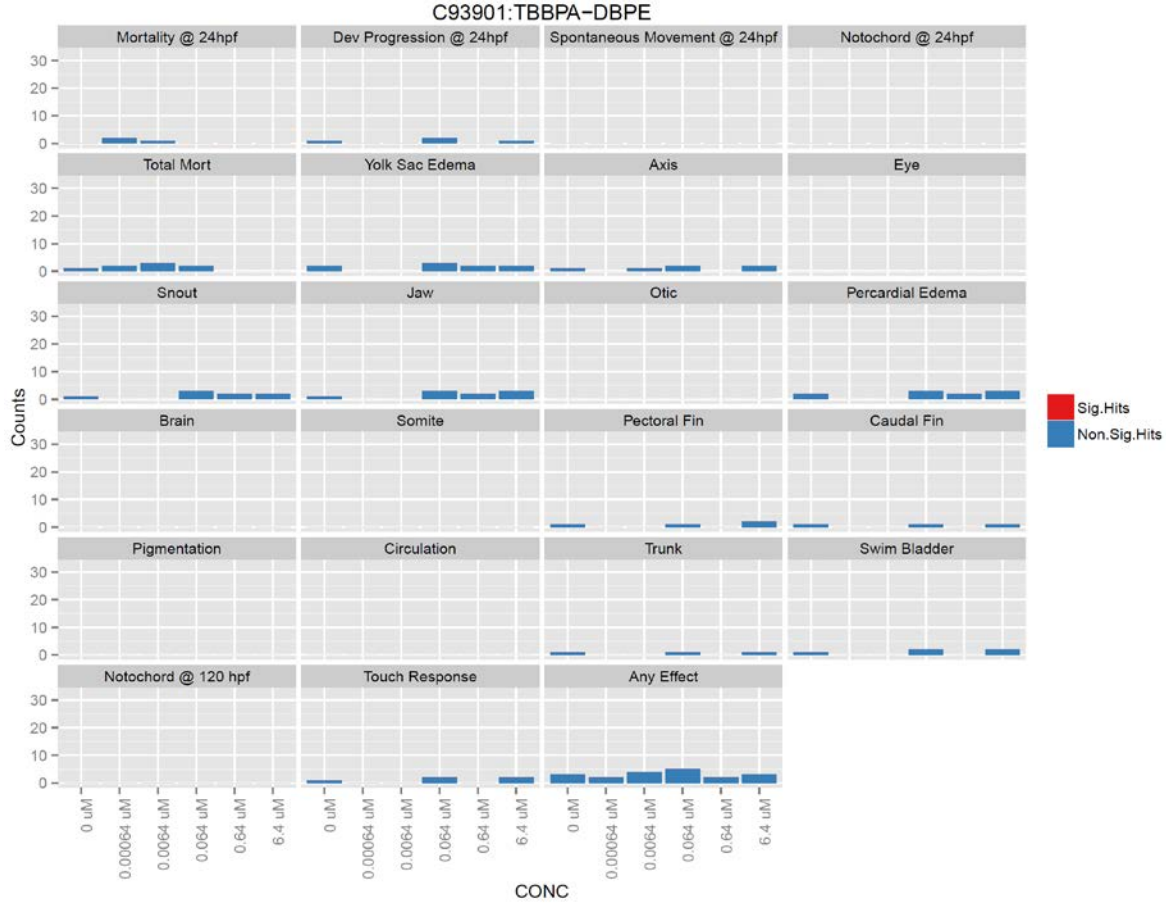


**TBBPA: Zebrafish larvae PMR assay results at 120 hpf**

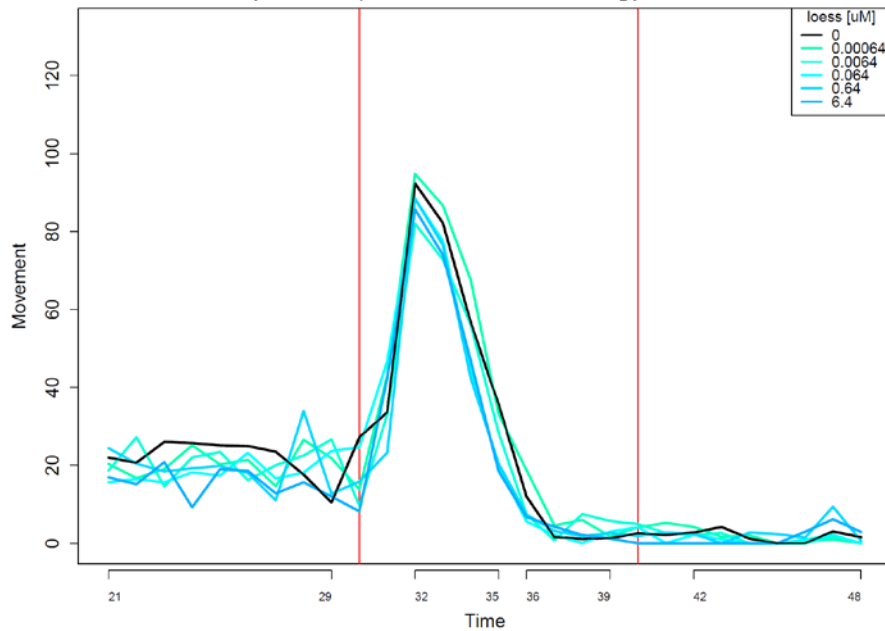


**Tetrabromobisphenol A-2,3-dibromopropyl ether (TBBPA-DBPE)**

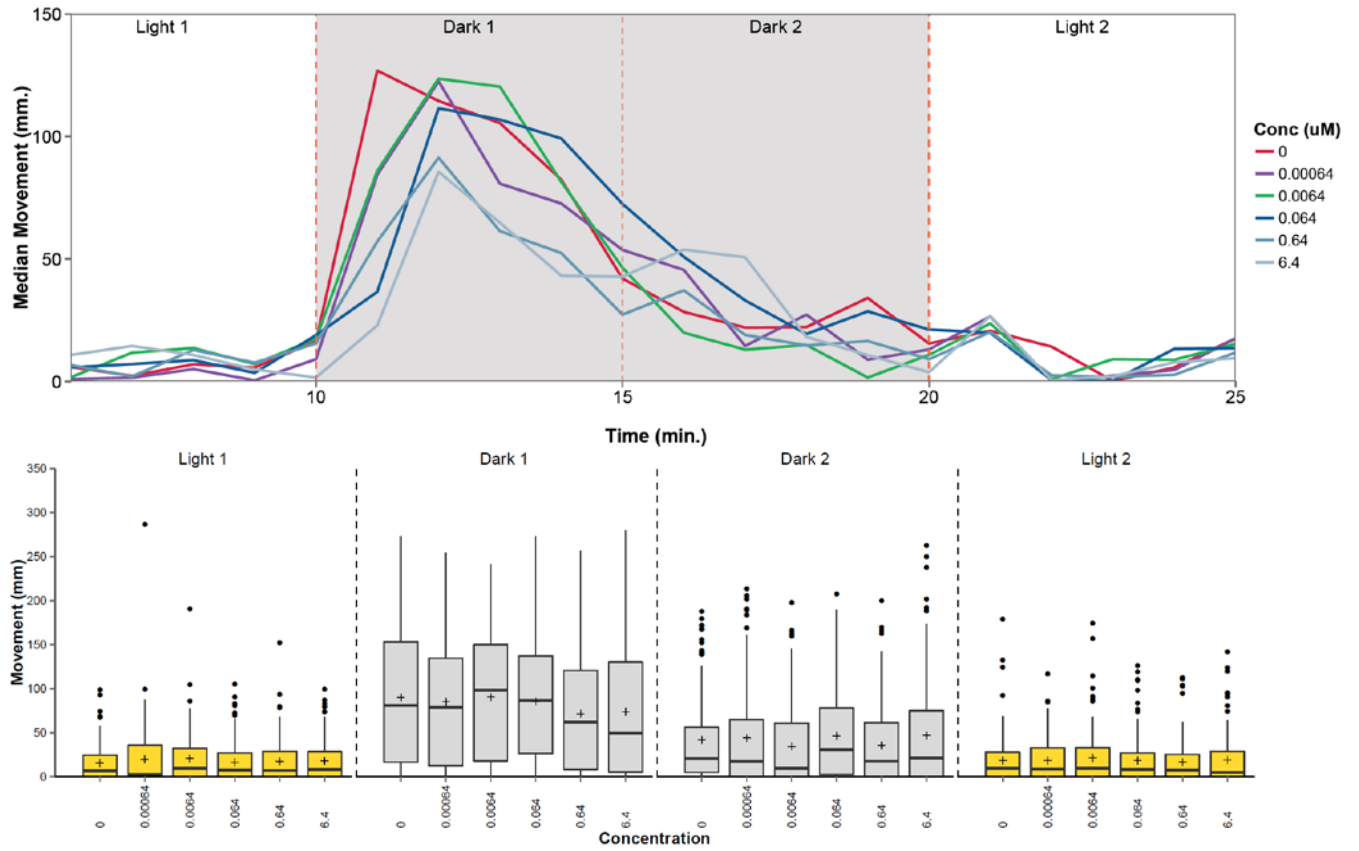
***TBBPA-DBPE: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***TBBPA-DBPE: Zebrafish embryo PRAT results at 24 hpf***



**TBBPA-DBPE: Zebrafish larvae PMR assay results at 120 hpf**



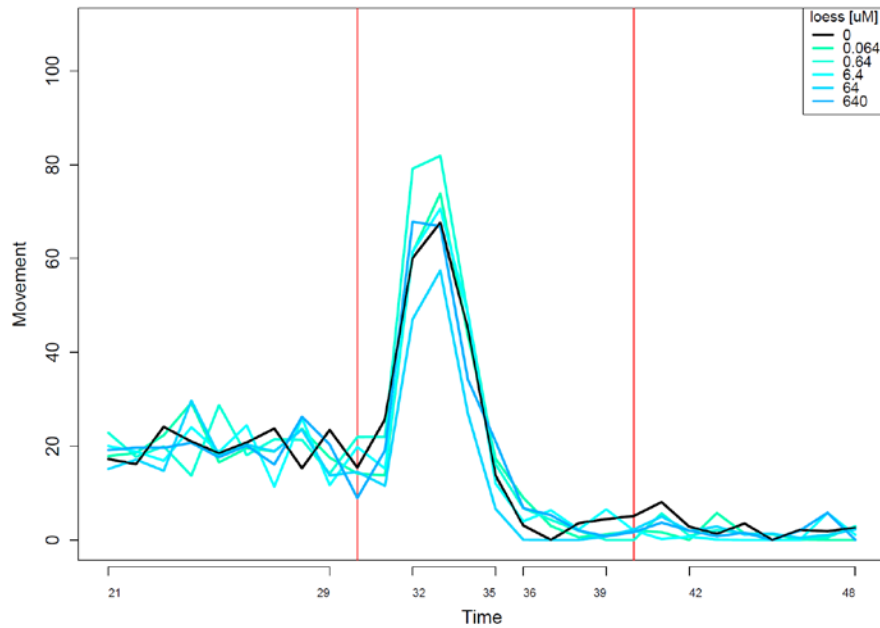


**Bis(2-ethylhexyl)-tetrabromophthalate (TBPH)**

***TBPH: Zebrafish Mortality and Malformations at 24 and 120 hpf***



***TBPH: Zebrafish embryo PRAT results at 24 hpf***



**TBPH: Zebrafish larvae PMR assay results at 120 hpf**

