

# A Dynamic Dendritic Refractory Period Regulates Burst Discharge in the Electrosensory Lobe of Weakly Electric Fish

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## Materials and Methods

### Preparation of tissue slices. *Apteronotus leptorhynchus* (B.

26 28 C. A 0.05% C A C E (1994; 2000). C. F ( ): 124 C, 2.0 C, 1.25 4, 1.5 C C<sub>2</sub>, 1.5 4, 24 C<sub>3</sub>, 10 D- 3, 7.4 E (1994).

A. ( ).

### Intracellular recordings.

(n = 68). 200 (n = 42). 69 20.7 59 24.5 (n = 20 2 D). 0.5 A, A (C E D, C ) (C E D, C D, C D, C D, A D, D ( ).

B

B (A) (AHP

AHP<sub>1</sub>)<sup>2</sup>.

A A A A A

A

Models. A E (D

, 2001).

(D

, 2001, 2002, 2003; (D

, 2002).

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$$\frac{dV}{dt} \begin{cases} 0 & \dots t_n \quad r_s \\ I \quad V & s \quad t \quad t_n, \quad b \quad t_n \quad s \quad t \quad t_n, \quad \dots t_n \quad r_s, \quad t_n \quad t_{n-1} \quad r_d \\ I \quad V & \dots t_n \quad r_s, \quad t_n \quad t_{n-1} \quad r_d \end{cases} \quad (1)$$

$$\frac{db}{dt} \quad b/$$

Figure 6.10: A plot of the voltage  $V$  versus time  $t$  for a series RC circuit. The voltage starts at  $V_0$  at  $t=0$  and decays exponentially towards zero. The time constant  $\tau$  is indicated as the time it takes for the voltage to drop to  $V_0/e$ .

$$\frac{dV}{dt} = -\frac{V}{\tau} \quad \left[ \tau = RC \right]$$

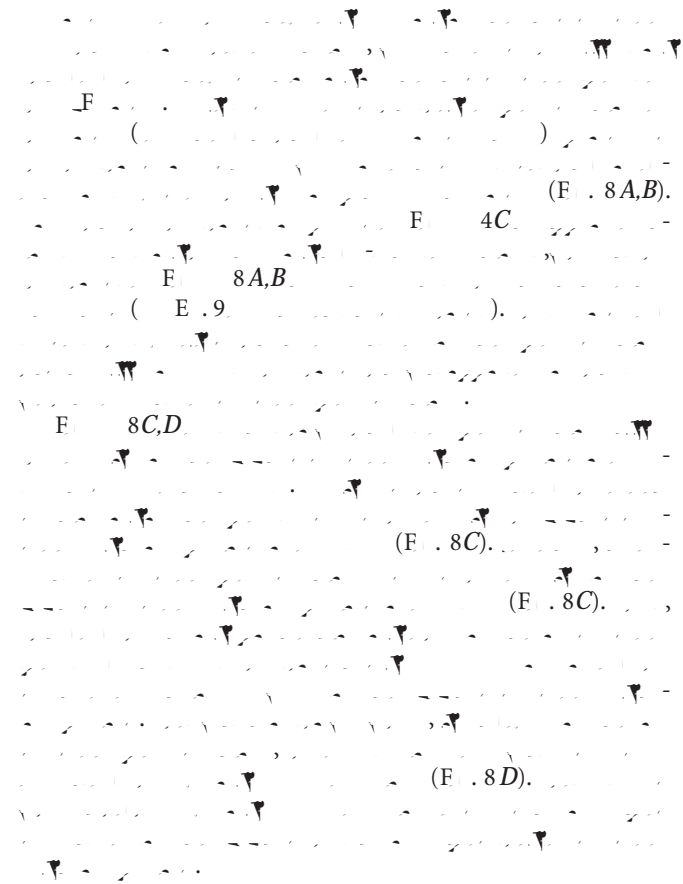
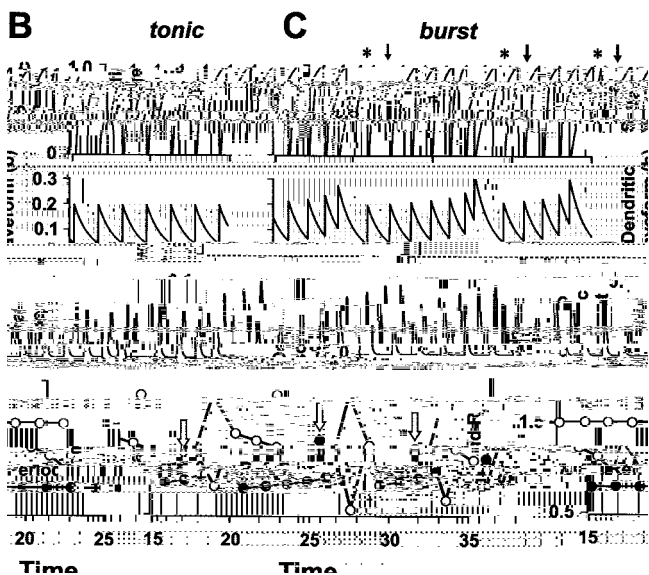
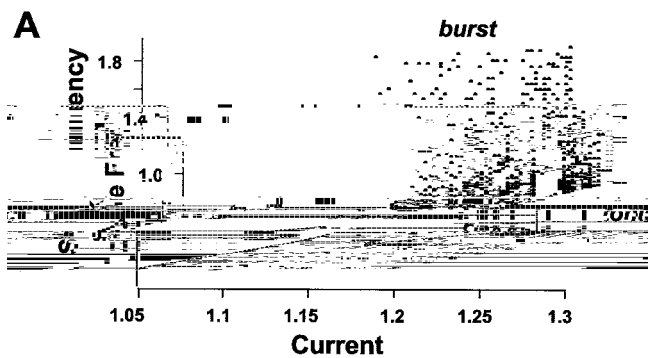




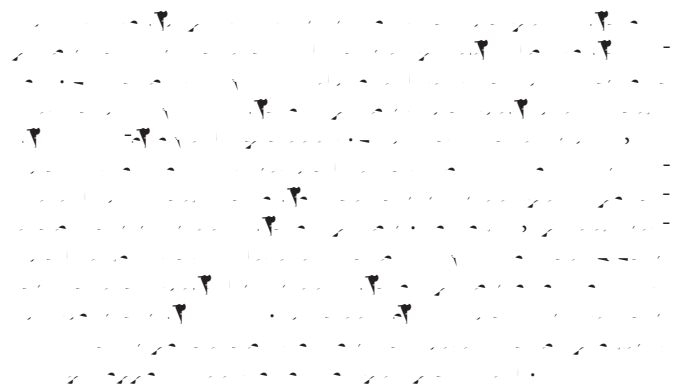
..... DA .

(Fig. 6A) ( $n = 9$ ).  
 A ... ( ... )  
 1994). A ... 2.5 ... 8.8 ...  
 DA ... (Fig. 6B) ( $n = 10$ ).  
 DA ... ( ... , 1994; ... , 2000; D ... , 2001).

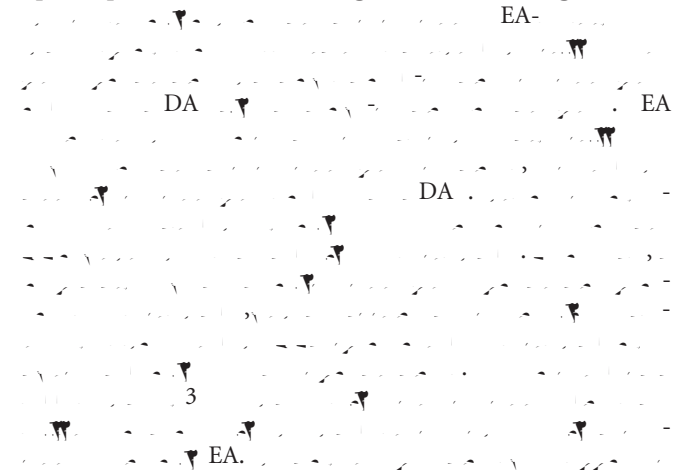
( ... , 2000). D ... 4( ... 9 ... 3202.4( ... 4 ... 3 ... 02.49.2( ... )2.49.2( ... )-.49.2( ... )-.49.2( ... )



## Discussion



### Spike repolarization sets the stage for burst discharge





(A) (B) (C) (D) (E) (F)

**A dynamic dendritic refractory period is involved in regulating burst discharge**

(A) (B) (C) (D) (E) (F)

200 (E) (F) (A)

200 (A)

(A) (B) (C) (D) (E) (F)

(D) (E) (F)

3.3 (D) (E) (F)

(A) (B) (C) (D) (E) (F)

(C) (D) (E) (F)

1997; (A) (B) (C) (D) (E) (F) (G) (H) (I) (J) (K) (L) (M) (N) (O) (P) (Q) (R) (S) (T) (U) (V) (W) (X) (Y) (Z)

(A) (B) (C) (D) (E) (F) (G) (H) (I) (J) (K) (L) (M) (N) (O) (P) (Q) (R) (S) (T) (U) (V) (W) (X) (Y) (Z)

DA (A) (B) (C) (D) (E) (F) (G) (H) (I) (J) (K) (L) (M) (N) (O) (P) (Q) (R) (S) (T) (U) (V) (W) (X) (Y) (Z)

(A) (B) (C) (D) (E) (F) (G) (H) (I) (J) (K) (L) (M) (N) (O) (P) (Q) (R) (S) (T) (U) (V) (W) (X) (Y) (Z)



