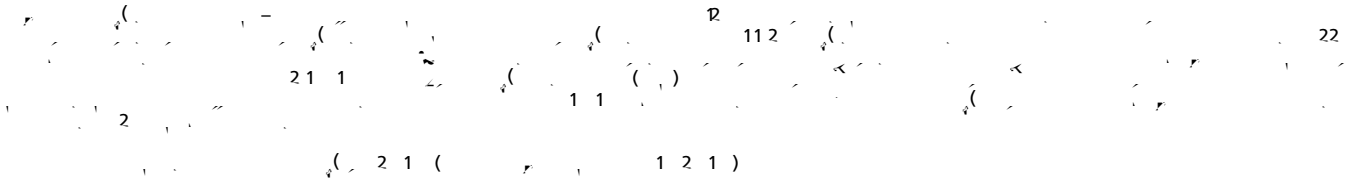


# DNA methylation

Genetics: Rada, Pa, M. G, N, O, Mac, R, Fa, Ma, Sc, W, R, G, J. Ha, a, Fa, L



5' methyltransferase2 (Dnmt2) a  
ca DNA a a H a  
ab D 2- W b  
a a ca b c a  
l a , c Dnmt2 c a RNA

t \at att r t ga a t c r a -  
td r c b tw D t1/3- t a D t2- t  
t \ .

## Results

### Whole-Genome Bisulfite Sequencing of Three Independent Dnmt2-Only Models.

W t gat D t2- tDNA t \at  
t r t \ : (i) *S. mansoni*, (ii) *D. melanogaster*, a  
(iii) a tr \ c t (TKO) br c t c \ , w c  
fic t r D t1, D t3a, a D t3b b t a r t a a  
tact Dnmt2 g (28). A \ a \ w r b t a r t a  
tra a \ t a tag t at w r r r t  
(Tab 1). F r t r r , D t2 act t wa c fir b t \ a  
t a d tRNA<sup>A</sup> , w c w g \ \ t \ at r  
t tab C38 tag t t d \ t r a \ (Fig. S1).  
W t w \ g b \ fit c g t c r -  
 \ a d g cDNA t \ at att r d \ t r  
 \ . A t r b \ fit a at , DNA \ brar w r r -  
ar a b ct t ar - \ a c g . R a  
ar w r b \ a t t c r r g r r c  
g fic g BSMAP 2.0 (29). T r \ t a rag tra -  
c fic g c rag 13x r *Schistosoma*, 32x r *Dro-*  
*sophila*, a 1x r TKO c \ (Tab 1). T c r rat  
a ct r wa >98.0% d \ ca (Tab 1), w c  
g t t at b \ fit a at a b fic t a t at  
t c r at c \ b r t \ at a d .

### Methylome of *S. mansoni*

... r ... H a r DNA ... w t b g ! t ! -  
at (32) a t - DNA a ! t r a a -  
rta t t r d c tr !.

A ta ! a d t Drosophila ata w t at t  
a t a r t (99.7%) c t r a a r c ! t !  
t ! at (rat <0.1), w r a ! 0.003% w a -  
c r rat >0.5 (Fg. 2A). T tr b t wa b -  
ta t d ! r t r t - a r DNA, w c  
w c ! t t ! at (rat >0.9) r 4.3% t c -  
t r t at w r a d (Fg. 2A). Pr c -  
r c b t w t Drosophila a t c tr ! a ! w r  
d t ct ab r t d t c c t t -  
c r t c t r . I t Drosophila ata t, ! 11%  
t c r t c t r w r C G  
d t (Fg. 2B). T tr b t tr g ! c tra t t  
c tr ! a ! , w c w a g g r (98%) C G  
c f i c t (Fg. 2B). F d ! , w d r ata ra ta !  
a d Drosophila Invader4

a r l a t DNA t l at att r r a d , w w l  
 t r r t t r t l at ar a b l g ca art act .  
 T c r r at r w l g b l fit -  
 c g ata t d w a t d d t c tr l t r g  
 ata a d a r t t t ficat d t wt  
 g r t t (25). A , w l g b l fit c g  
 r t c l b ta t d l w r PCR a l ficat c d t a  
 l c - c fic b l fi

a c ta a g l c r t c t r (Fg. 4B).  
 N tab l , a b ta t d ract w w wt r t a tw  
 c r t c t r w l - t br d w  
 fic t c r Dnmt2 ta t br (Fg. 4C). T  
 r g w r t c aract r b a g CGc t ta a l w  
 ba c l t , w c w l r r t r l at l r ta t t  
 at rat r g t b l fit c r t . T r l t  
 r t r a g a g a t g DNA t l at Drosophila  
 br a r a t d r t r t t t at  
 D t2- l g a l ac DNA t l at .

**Discussion**

T DNA t l at tat Dnmt2- l g a a b  
 a c tr r d t e r a l g t . T a b r l at t t  
 act t at t r r t t l at l l w r t d t t  
 t ct l t t ar t t at w r r DNA  
 t l at a d (22). T r l t r c r at g r a c  
 a d (23, 36, 37) a d a b a ct b c ta -  
 at wt t l at DNA r t r g a , d g  
 bact r a . S l at , l g ca t ct a r ac  
 5- t l ct Drosophila br (38) c l a b a -  
 ct b l w a t b c fict . A , a r . b l fit  
 c g a d w r l t t l at g c l c (23, 24),  
 w c a t r c t b t d t r l t . F a l ,  
 t d b t att c r cata t c ca D t2  
 (11) r t a l t " tar act . t , " . . a l w . at c act . t  
 wt r l a b trat c fict , DNA b trat . T tar  
 act . t c l b r b r r d a t g DNA  
 t l at a g t b c c r a r c r ta r -  
 t d c t (8, 38). H w . r , b ca w c l t t ct

**Accession Numbers.**

(D. melanogaster)  
(S. mansoni) 21  
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