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## Introduction

Temozolomide (TMZ) is the only chemotherapeutic agent which has been shown to be effective for the glioblastoma (GB) treatment. Among all other modalities including brachytherapy, it is regarded as the most effective [1,2]. Indeed, temozolomide is a 2-methyl-3-(4-amino-2-methyl-5-imidazolyl)-5-(2-chloroethyl)-3-nitroimidazole-4-carboxamide (ACNU), Bevacizumab, Human epidermal growth factor receptor 2 (HER2), Vincristine, and Camptothecin are used and used for GB therapy in Japan, but their effectiveness is highly dependent on the genetic background [3]. Additionally, the use of Bevacizumab, which has been shown to be effective in the treatment of GB, is not effective in addition to TMZ. The use of Bevacizumab in addition

## Citation:

Ho i al, Tok o, 10 a ien a Na i onal Cance Cen e Ho i al, Tok o; 1 a ien a Shio a Ho i al, In e na i onal Uni e i of Heal h and Welfa e, Yai a; 3 a ien a Ka a aki Ho i al, Hi achi o a; and e ma i n g 1 a ien a Tok o-Ni hi Tok h kai Ho i al, Tok o, Ja an. All of he 55 GB a ien e ce i ed e mo olomide and adia i on a e ge i n a cco dance i h he S oocol [2]. W i e n i nfo med con e nfo he a n i a i on of MGMT mRNA i n mo a m le a o i ded b a l l a ien . RT-PCR ba ed a n i a i on of MGMT mRNA (C o Poin of MGMT mRNA i n Gliobla oma) a a o ed b he E hic Commi ee a Tok o Medical Uni e i i n he ea 2005, a Ki a a o Uni e i i n he ea 2002, a he In e na i onal Uni e i of Heal h and Welfa e i n he ea 2012, and a Tok h kai Ho i al i n he ea 2015.

### Real-time polymerase chain reaction based quantitation of MGMT mRNA absolute value

Collec i on of mo a m le and a n i a i on of MGMT mRNA a e fo med b S e c i a l Refe nce Labo a o Co. L d., Hino, Ja an. e me hod e d o a n i f he a b o l e a l e of MGMT mRNA b RT-PCR a de c i bed e i o l [9]. B i e , he g a n i d i n i m h i o c a n a e- h e n o l- c h l o o f o m m e d i a e d e a c i o n a e fo med i n g I o g e n (WAKO J n a k ) fo e a c i n g o a l RNA f o m e i he 10 mg of f e h l o b a i n e d mo a m le o e d a 4 C i n QIAGEN RNAla e T i e P o e c T b e (AMBION Inc) o i e f o e n a -70 C [10]. F o m l g of he e a c e d o a l RNA, he c o m l e m e n a DNA (cDNA) a n h e i e d a n d a b e e n l i n c b a e d a 37 C fo 60 min e . e e a l- i m e o l m e a e c h a i n e a c i o n a c a i e d o i n g a Ta Man Uni e a l Ma e Mi (A l i e d B i o e m ) c o m i n g of 120 nM of each i m e [11], 200 nM of o b e (5- CGA GCA GTG GGA GGA GCA ATG AGA-3), and 2.5 L of each cDNA a m le, i h d e n a a i o n a 95 C fo 10 min e and 50 c c l e (a 95 C fo 30 e c o n d , 60 C fo 40 e c o n d , and 72 C fo 30 e c o n d ) i n a e a l- i m e PCR e m . e l e l of gl c e a l d e h- 3- h o h a e d e h d o g e n a e (GAPDH) mRNA e e e i o n e e e d a a a n i a i e i n e n a l c o n o l . U i n g a a n d a d c e , he e e i o n l e l of each mRNA a c a l c l a e d . I n o d e o o b a i n a n e e n m o e a c c a e a n i c a i o n , he MGMT mRNA e e e i o n l e l of each a m le a n o m a l i e d b he e e i o n of he GAPDH gene.

### Statistical analysis

All he a i c i a l a n a l e e e c a i e d i n M i c r o o E c e l T o k e i S o a e . e e o g e i o n- f e e i a l e i o d a n d o e a l l i a l of he 55 GB a ien e e a n a l e d , a n d he c a e i h l e h a n 8.1 mon h o g e i o n- f e e i a l a n d 15 mon h o e a l l i a l e e j d g e d o b e T M Z e i a n a c c o d i n g o h e e l of B a i n T m o R e g i Ja an [12]. e c o o i n e e d e e m i n e d i n GB e a e d i h T M Z l e h a n 75 a n d K P S of a l e a 60 b R O C a n a l i . e e c i c i a n d e n i i i of each c o o i n e e c a l c l a e d . K a l a n- M e i e a n a l i a e f o m e d o e a l a e e a c h i a l i m e , a n d he l o g a n k (M a n e l- C o ) e a c o n i d e d f o a n a l i n g he b i n a a i a b l e ( l e h a n a n d a l e a h e c o o i n ) . 2- a i l e d p a l e a e e o e d . D e e m i n a i o n of he a i c i a l i g n i c a n c e of he d a a a n a l i a e a a o b a b i l i l e l of 5% ( $p=0.05$ ).

## Results

### ROC analysis for selecting candidate cutoff points for MGMTmRNA in GB

e c a n d i d a e c o o i n i n e a c h GB g o e e c a l c l a e d b a c o i e /0371gRNA f e c h e c a d i d a e c o o i n i o a e d i n g P F S

a c d i d a e c o o i n i o a e d i n g O S e c i c i i e of a83.6, 7.9(Tj)0.208 T T d K69.6%, a n d e n i i i i e of a39.1, 47.8 a n d 502.2%, a e i e c i i o ]Tj)0.077 T T j i m e c].65 a a c h i a l 0.5 (o m e , a n d he ) o g a n k .5 (M a n e l- C o ) 0.5 ( o e e d ]Tj)0.10 T T e d a o e a l a e e i n a





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Motomura K, Natsume A, Kishida Y, Higashi H, Kondo Y, et al. (2011) Benefits of interferon- $\gamma$  and temozolomide combination therapy for newly diagnosed

Identification of regions correlating MGMT promoter methylation and gene

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