



US 20110229479A1

(19) **United States**

(12) **Patent Application Publication**
Vogelstein et al.

(10) **Pub. No.: US 2011/0229479 A1**

(43) **Pub. Date: Sep. 22, 2011**

(54) **GENETIC ALTERATIONS IN ISOCITRATE DEHYDROGENASE AND OTHER GENES IN MALIGNANT GLIOMA**

(75) Inventors: **Bert Vogelstein**, Baltimore, MD (US); **Kenneth W. Kinzler**, Baltimore, MD (US); **D. Williams Parsons**, Ellicott City, MD (US); **Xiaosong Zhang**, Baltimore, MD (US); **Jimmy Cheng-Ho Lin**, Baltimore, MD (US); **Rebecca J. Leary**, Baltimore, MD (US); **Philipp Angenendt**, Baltimore, MD (US); **Nickolas Papadopoulos**, Towson, MD (US); **Victor Velculescu**, Dayton, MD (US); **Giovanni Parmigiani**, Baltimore, MD (US); **Rachel Karchin**, Towson, MD (US); **Sian Jones**, Baltimore, MD (US); **Hai Yan**, Chapel Hill, NC (US); **Darell Bigner**, Mebane, NC (US); **Chien-Tsun Kuan**, Cary, NC (US)

(73) Assignees: **THE JOHNS HOPKINS UNIVERSITY**, Baltimore, MD (US); **DUKE UNIVERSITY**, Durham, SC (US)

(21) Appl. No.: **13/060,191**

(22) PCT Filed: **Sep. 3, 2009**

(86) PCT No.: **PCT/US09/55803**

§ 371 (c)(1),
(2), (4) Date: **Jun. 7, 2011**

Related U.S. Application Data

(60) Provisional application No. 61/093,739, filed on Sep. 3, 2008, provisional application No. 61/110,397, filed on Oct. 31, 2008, provisional application No. 61/162,737, filed on Mar. 24, 2009.

Publication Classification

(51) **Int. Cl.**
A61K 39/395 (2006.01)
C12Q 1/68 (2006.01)
G01N 33/574 (2006.01)
C07K 16/32 (2006.01)
A61K 39/00 (2006.01)
C12N 9/04 (2006.01)
C07H 21/04 (2006.01)
C12Q 1/32 (2006.01)
A61P 37/04 (2006.01)
A61P 35/00 (2006.01)

(52) **U.S. Cl.** **424/138.1**; 435/6.18; 424/174.1; 435/7.1; 435/6.11; 530/387.7; 424/185.1; 435/190; 536/23.2; 435/26

(57) **ABSTRACT**

We found mutations of the R132 residue of isocitrate dehydrogenase 1 (IDH1) in the majority of grade II and III astrocytomas and oligodendrogliomas as well as in glioblastomas that develop from these lower grade lesions. Those tumors without mutations in IDH1 often had mutations at the analogous R172 residue of the closely related IDH2 gene. These findings have important implications for the pathogenesis and diagnosis of malignant gliomas.

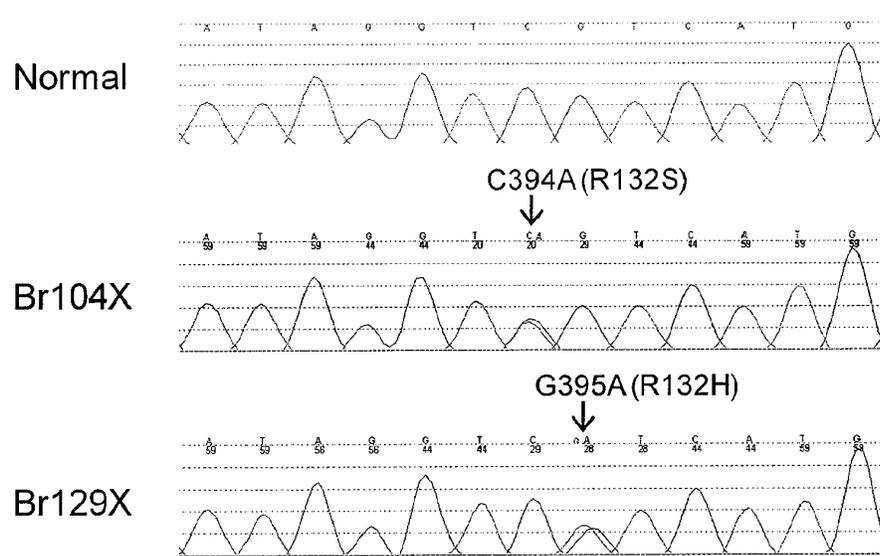


Fig. 1.

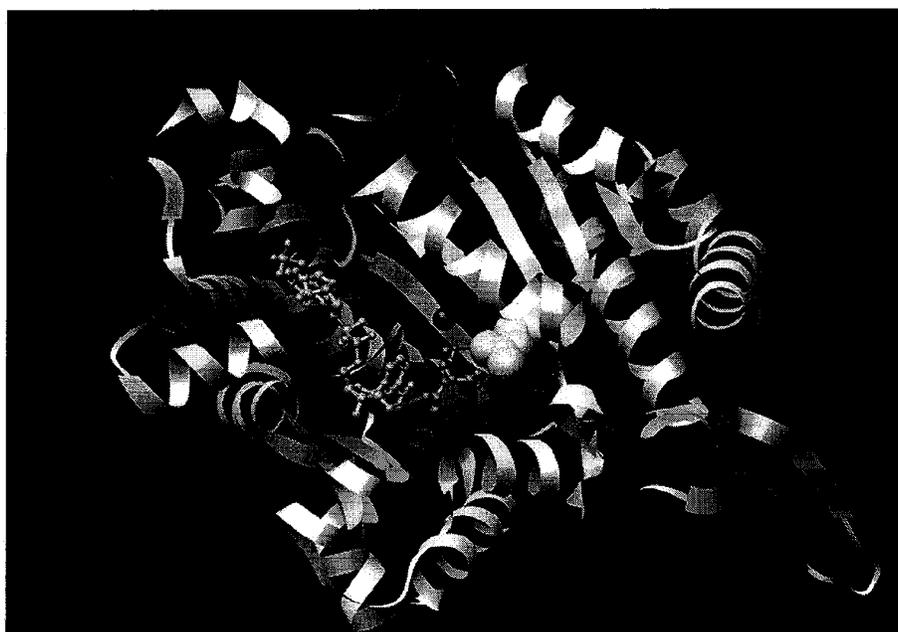


Fig. 2.

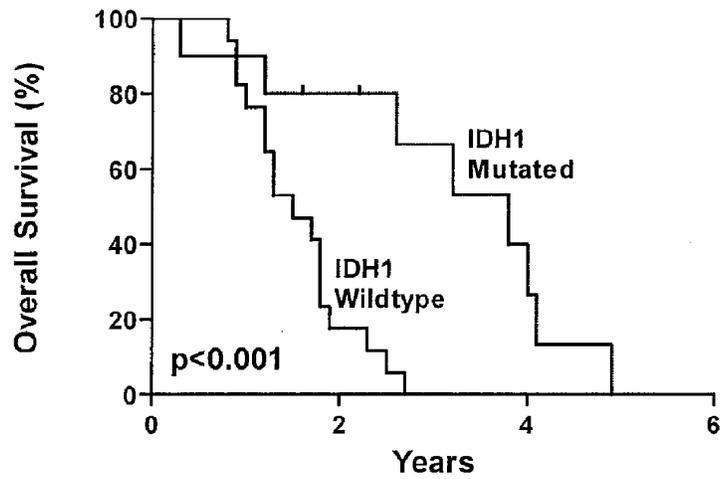


Fig. 3.

Fig. 4A

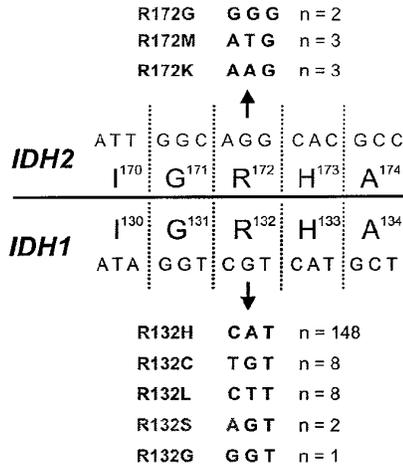
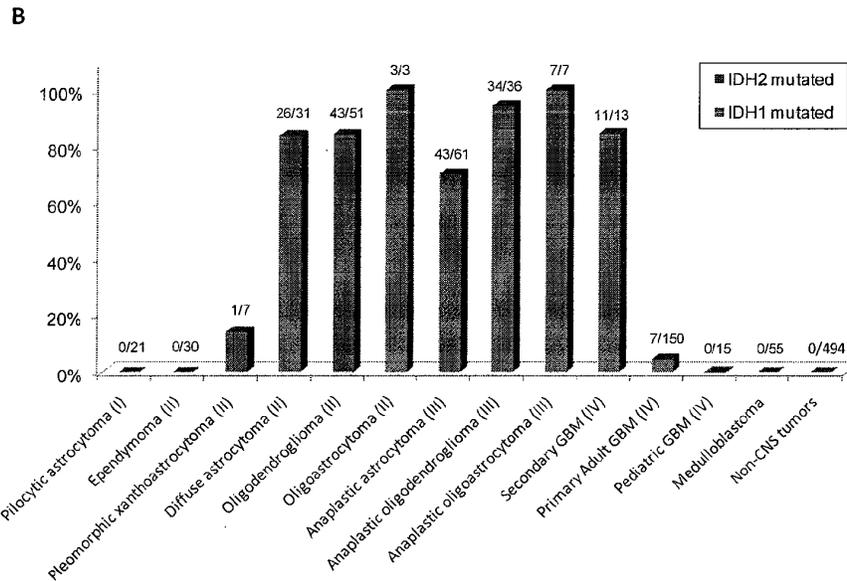


Fig. 4B



Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.