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Collapse

PMID: 9168119
Score: 100%

Dimeric association **and segmental variability in the** structure **of** human CD4 **.**

Wu H / Kwong P D / Hendrickson W A

Journal Article - Research Support, Non-U.S. Gov't - Research Support, U.S. Gov't, P.H.S. (Nature), Published: 29/May/1997, Revised: 15/11/2006

Abstract

CD4 is a co-receptor in the cellular immune response . It increases the avidity of association between a T cell and an antigen-presenting cell by interacting with non-polymorphic portions of the complex between class II major histocompatibility complex (MHC) and T-cell receptor (TCR) molecules, and it contributes directly to signal transduction through its cytoplasmic association with the lymphocyte kinase Lck . CD4 also serves as the high-affinity receptor for cellular attachment and entry of the human immunodeficiency virus (HIV) . The extracellular portion of CD4 comprises four immunoglobulin-like domains (D1-D4) . This part of human CD4 (residues 1-369) has been characterized as a recombinant soluble protein (sCD4), and crystal structures have been described for the human D1D2 fragment and for the rat D3D4 fragment . We have now determined the structures of intact sCD4 in three crystal lattices . These structures have a hinge-like variability at the D1D2 to D3D4 junction that might be important in immune recognition and HIV fusion, and a common dimeric association through D4 domains . Dynamic light scattering measurements and chemical crosslinking of sCD4 corroborate dimerization at high protein concentration . We suggest that such dimers mayhave relevance as mediators of signal transduction in T cells .

MeSH terms: Animals / Antigens, CD4 (chemistry, genetics, immunology) / CHO Cells / Cricetinae / Cross-Linking Reagents / Crystallography, X-Ray / Dimerization / HIV (immunology) / Humans / Models, Molecular / Molecular Sequence Data / Mutagenesis / Protein Conformation / T-Lymphocytes (immunology)

Chemicals: Antigens, CD4 (0) / Cross-Linking Reagents (0)

Expand

PMID: 18270220
Score: 67,02%

CD4 **mimetic miniproteins: potent** anti-HIV compounds **with promising activity as** microbicides **.**

Van Herrewege Yven / Morellato Laurence / Descours Anne / Aerts Laetitia / Michiels Jo / Heyndrickx Leo / Martin Loïc / Vanham Guido

Journal Article - Research Support, Non-U.S. Gov't (1460-2091), Published: ?/Apr/2008, Revised: ?/?/?

Expand

PMID: 15326605
Score: 66,31%

Domain swapping of CD4 **upon dimerization .**

Sanejouand Yves-Henri

Journal Article (1097-0134), Published: 1/Oct/2004, Revised: ?/?/?

Expand

PMID: 15046506
Score: 35,33%

Sandwich-type germanotungstates**:** structure **and magnetic properties of the dimeric** polyoxoanions **[M4(H2O)2(GeW9O34)2]12 - (M = Mn2+,** Cu2+**,** Zn2+**,** Cd2+**) .**

Kortz Ulrich / Nellutla Saritha / Stowe Ashley C / Dalal Naresh S / Rauwald Urs / Danquah Welbeck / Ravot Didier

Journal Article (Inorganic chemistry), Published: 5/Apr/2004, Revised: ?/?/?

http://www.novoseek.com/

Genetic variability in iron-related oxidative stress pathways (Nrf2, NQ01, NOS3, and HO-1), iron intake, and risk of postmenopausal breast cancer.

Cancer Epidemiol Biomarkers Prev 2007,Sep,01;16(9):1784-94; (PMID: 17726138)

Hong,Chi-Chen ; **Ambrosone,Christine B** ; Ahn,Jiyoung ; Choi,Ji-Yeob ; McCullough,Marjorie L ; Stevens,Victoria L ; Rodriguez,Carmen ; Thun,Michael J ; Calle,Eugenia E;

Roswell Park Cancer Institute, Elm & Carlton Streets, Buffalo, NY 14263, USA. Chi-Chen.Hong@roswellpark.org

Cancer epidemiology, biomarkers & prevention : a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology (ISSN: 1055-9965)

Oxidative stress resulting from excess reactive oxygen species and/or deficiencies in antioxidant capabilities may play a role in breast cancer etiology. In a nested case-control study of postmenopausal women (505 cases and 502 controls) from the American Cancer Society Prevention II Nutrition Cohort, we examined relationships between breast cancer risk and genetic polymorphisms of enzymes involved in the generation and removal of iron-mediated reactive oxygen species. Using unconditional logistic regression, genetic variations in Nrf2 (11108C>T), NQO1 (609C>T), NOS3 (894G>T), and HO-1 [(GT)(n) dinucleotide length polymorphism] were not associated with breast cancer risk in a multivariate model. A significant dose trend (P trend = 0.04), however, was observed for total number of putative "at-risk" alleles (Nrf T, NQO1 T, NOS T, and HO-1 LL and LM genotypes), with those carrying three or more at-risk alleles having an odds ratio (OR) of 1.56 [95% confidence interval (95% CI), 0.97-2.51] compared with those having none. When examined in relation to iron, carriage of three or more high-risk alleles in the highest tertile of iron intake (OR, 2.27; 95% CI, 0.97-5.29; P trend = 0.02; P interaction = 0.30) or among users of supplemental iron (OR, 2.39; 95% CI, 1.09-5.26; P trend = 0.02; P interaction = 0.11) resulted in a greater than 2-fold increased risk compared with women with no high-risk alleles. Increased risk was also observed among supplement users with the HO-1 LL or LM genotypes (OR, 1.56; 95% CI, 1.01-2.41; P interaction = 0.32) compared with S allele carriers and MM genotypes combined. These results indicate that women with genotypes resulting in potentially higher levels of iron-generated **oxidative stress** may be at increased risk of breast cancer and that this association may be most relevant among women with high iron intake.

http://www.knewco.com/

Dimeric association and segmental variability in the structure of human CD4.

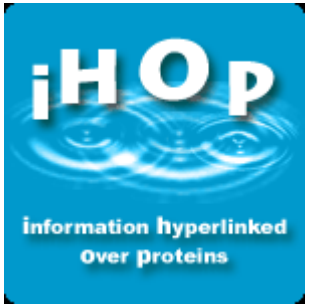
Wu H, Kwong PD, Hendrickson WA.

Department of Biochemistry and Molecular Biophysics, Columbia University, New York, New York 10032, USA.

CD4 is a co-receptor in the cellular immune response. It increases the avidity of association between a T cell and an antigen-presenting cell by interacting with non-polymorphic portions of the complex between class II major histocompatibility complex (MHC) and T-cell receptor (TCR) molecules, and it contributes directly to signal transduction through its cytoplasmic association with the lymphocyte kinase Lck. CD4 also serves as the high-affinity receptor for cellular attachment and entry of the human immunodeficiency virus (HIV). The extracellular portion of CD4 comprises four immunoglobulin-like domains (D1-D4). This part of human CD4 (residues 1-369) has been characterized as a recombinant soluble protein (sCD4), and crystal structures have been described for the human D1D2 fragment and for the rat D3D4 fragment. We have now determined the structures of intact sCD4 in three crystal lattices. These structures have a hinge-like variability at the D1D2 to D3D4 junction that might be important in immune recognition and HIV fusion, and a common dimeric association through D4 domains. Dynamic light scattering measurements and chemical crosslinking of sCD4 corroborate dimerization at high protein concentration. We suggest that such dimers mayhave relevance as mediators of signal transduction in T cells.

PMID: 9168119 [PubMed - indexed for MEDLINE]

http://www.ncbi.nlm.nih.gov/pubmed/9168119



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Nature (1997)
PMID: 9168119

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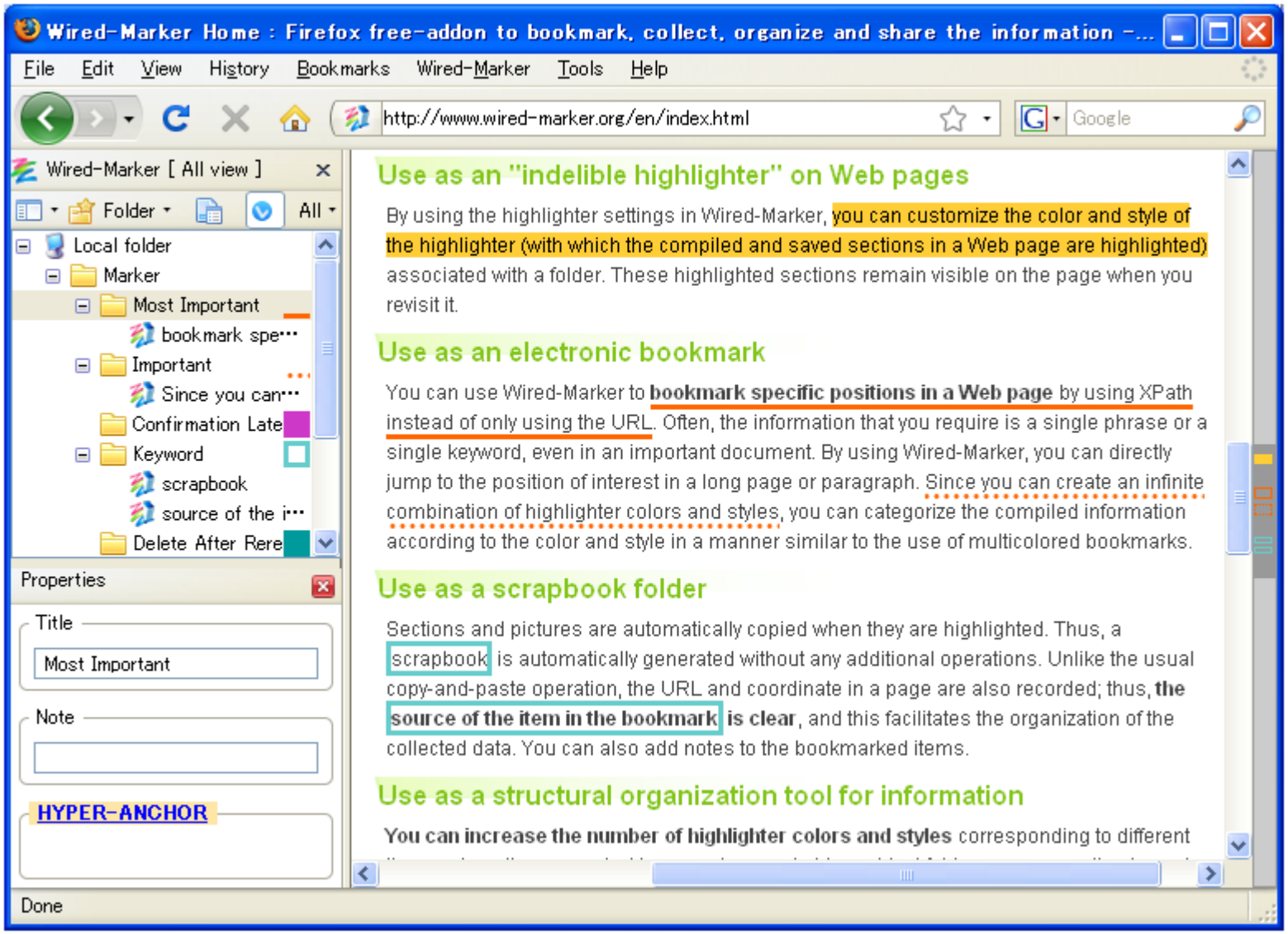
novo|seek				X
Concept Web Linker BY KNEWCO	X		X	X
iHOP Information Hyperlinked Over Proteins			X	

hack, hack, hack (well, not so much)

- Develop sample clients for BCMS
- Develop clients for iHop Web services
- Develop clients for Knewco Web services
- Develop Taverna Workflows
- Convert BCMS and iHOP to ieXML
- Generate ieXML XSLT for visualization

We take most of these as homework!

Collaborative annotation



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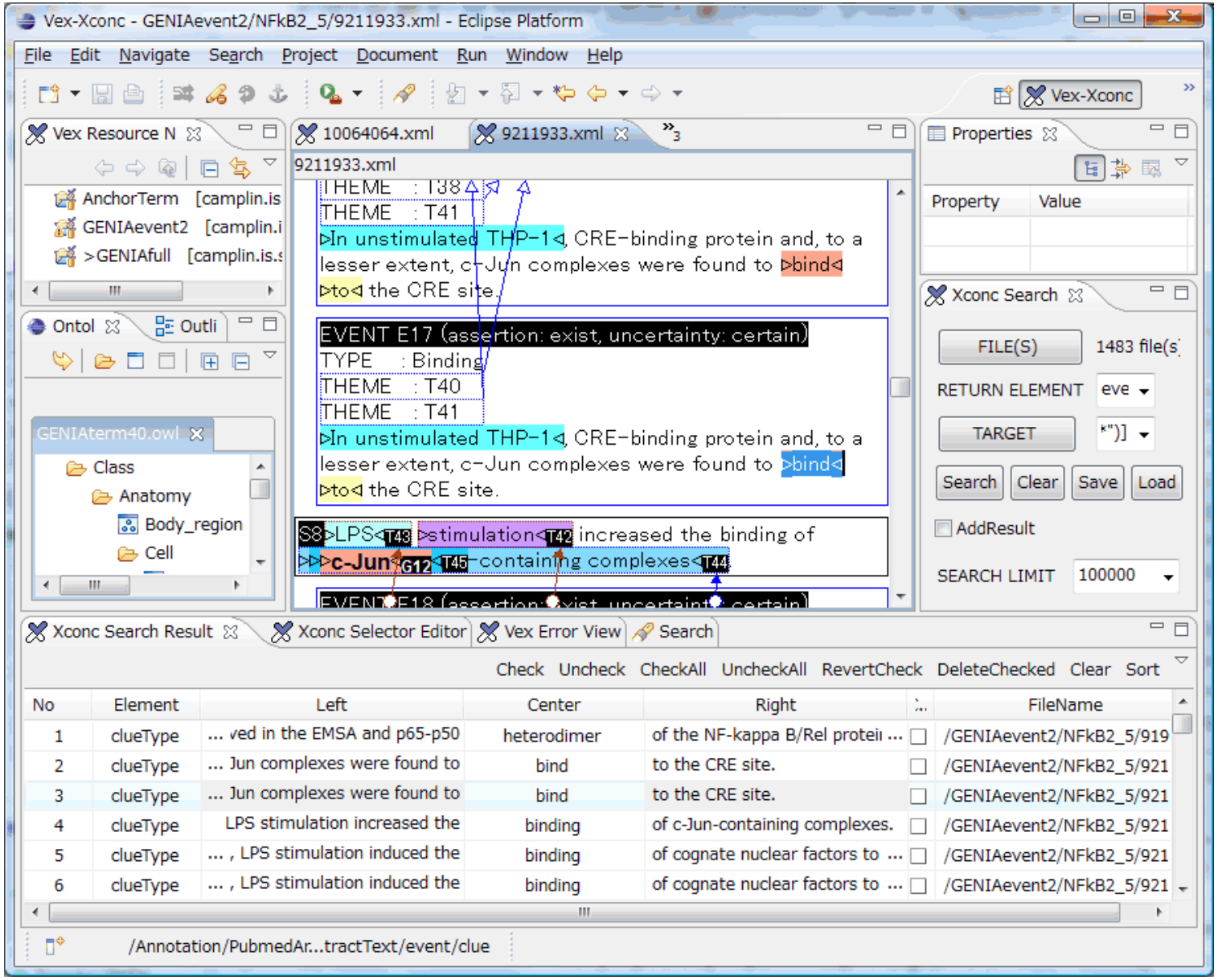

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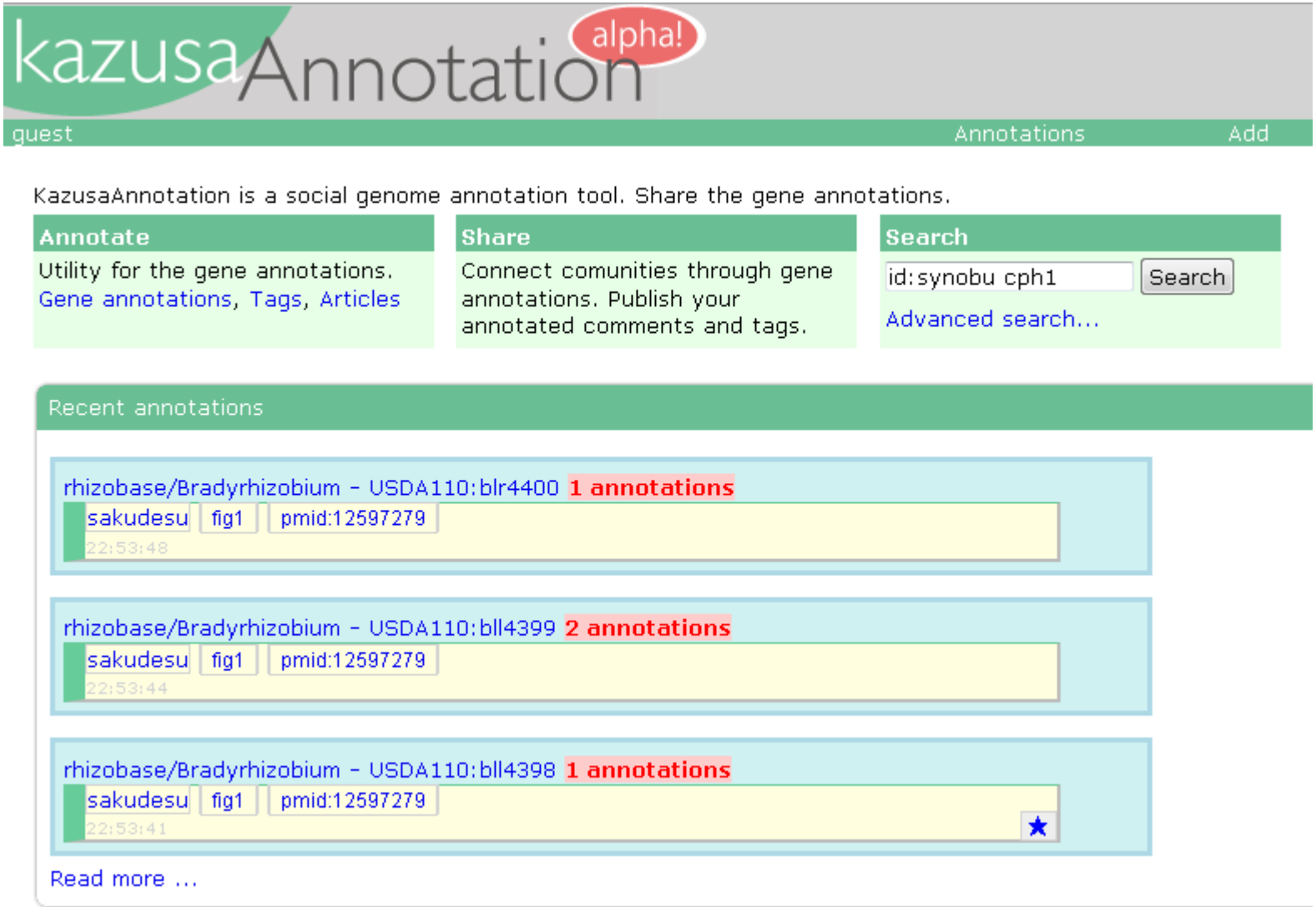

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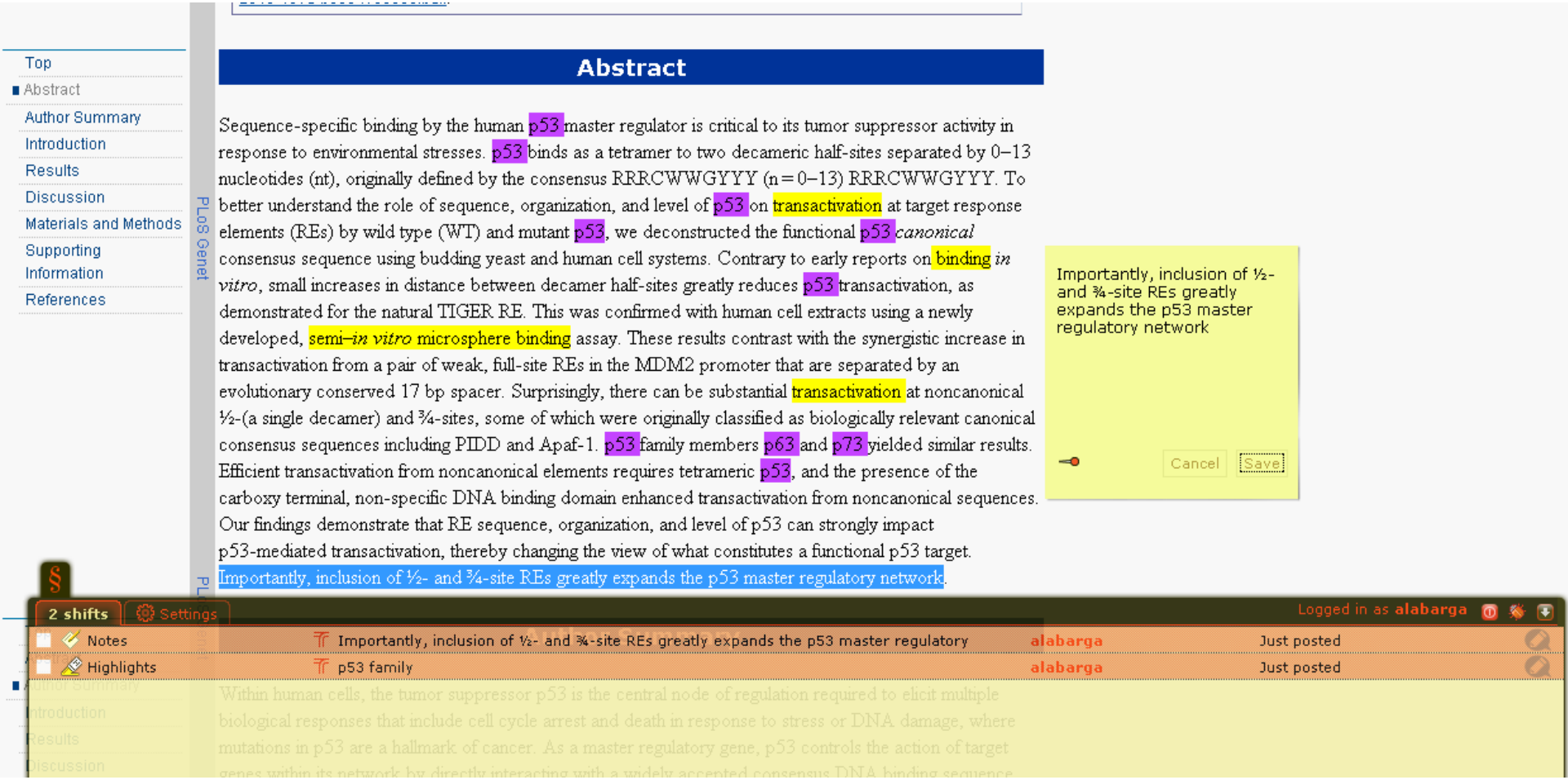

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