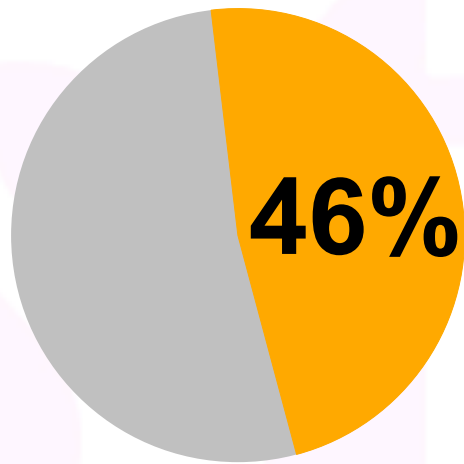


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**How Content Enrichment Is Changing  
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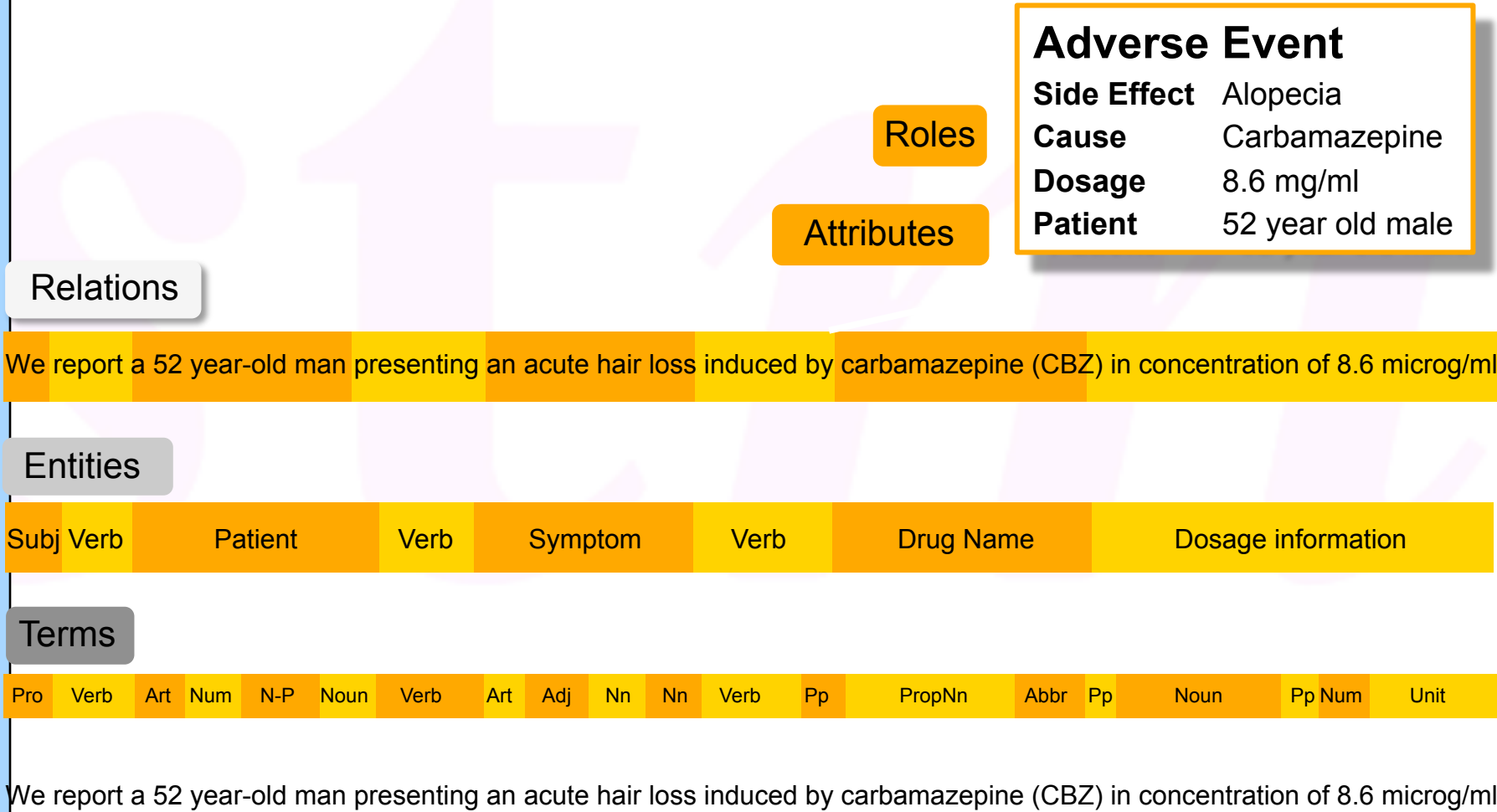


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*Source : 2011 study by the Publishing  
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# What Is Semantic Content Enrichment?



# What Is Semantic Content Enrichment?

## A case of hair loss induced by carbamazepine

Kohno Y, Ishii A, Shoji S, Department of Clinical Neurology, Tsukuba University.

We report a 52 year-old man presenting with an acute considerable hair loss induced by carbamazepine (CBZ). The remarkable scalp hair loss started within a week after CBZ administration. There was no evidence of dermatitis or allergic reaction, or other cause for the hair loss. The serum concentration of CBZ was 8.6 microg/ml therapeutic range 8-12 microg/ml). CBZ was discontinued, and the hair loss stopped within several days with new hair growth.

Medication-induced hair loss is an occasional adverse effect of many drugs used for neuropsychological diseases. CBZ also induces hair loss and its frequency was reported below 2%.

Only a limited number of detailed case reports describing CBZ-induced hair loss were available, and we found these cases could divide into two groups with regard to a delay in starting hair loss after administration of CBZ. In one group, the hair loss started within a week suggesting anagen effluvium and in another it started after two or three months suggesting telogen effluvium. This finding suggests the causative mechanism of CBZ-induced hair loss is not unitary.

### Symptoms

Alopecia    Dermatitis    Allergic reaction  
Anagen effluvium    Telogen effluvium

### Diseases

Neuropsychological diseases

### Drugs

Carbamazepine    CBZ

### Dosage information

8.6 microg./ml    8-12 microg./ml

### Patient information

52 year old    man

### People

Kohno Y    Ishii A    Shoji S

### Organizations

Dept of Clinical Neurology, Tsukuba University

### Side-effect Relationships

Drug-induced alopecia

# What Is Semantic Content Enrichment?

## A case of hair loss induced by

Kohno Y, Ishii A, Shoji S, Department of Clinical Neurology, Tsukuba University.

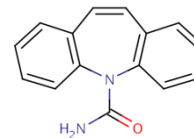
We report a 52 year-old man with considerable hair loss induced by remarkable scalp hair loss after administration. There was no reaction, or other cause for the concentration of CBZ was 8.6 12 microg/ml. CBZ was discontinued within several days with

Medication-induced hair loss. Many drugs used for neuropathy induce hair loss and its frequency

Only a limited number of detailed case reports on medication-induced hair loss were available, and we reviewed these cases. These cases could be divided into two groups with regard to a delay in starting hair loss after administration of CBZ. In one group, the hair loss started within a week suggesting anagen effluvium and in another it started after two or three months suggesting telogen effluvium. This finding suggests the causative mechanism of CBZ-induced hair loss is not unitary.

## Carbamazepine

**Accession Number**  
DB00564 (APRD00337)



### Indication

For the treatment of epilepsy and pain associated with true trigeminal neuralgia.

### Pharmacodynamics

Carbamazepine, an anticonvulsant structurally similar to tricyclic antidepressants, is used to treat partial seizures, tonic-clonic seizures, pain of neurologic origin such as trigeminal neuralgia, and psychiatric disorders including manic-depressive illness

[...]

**Toxicity** Mild ingestions cause vomiting, drowsiness, ataxia, slurred speech, nystagmus, dystonic reactions, and hallucinations. Severe intoxications may produce

[...]

### Dosage forms

|            |      |       |
|------------|------|-------|
| Suspension | Oral |       |
| Tablet     | Oral | [...] |

### Brand names

Apo-Carbamazepine  
Atretol  
Biston  
Calepsin  
[...]

**DrugBank**

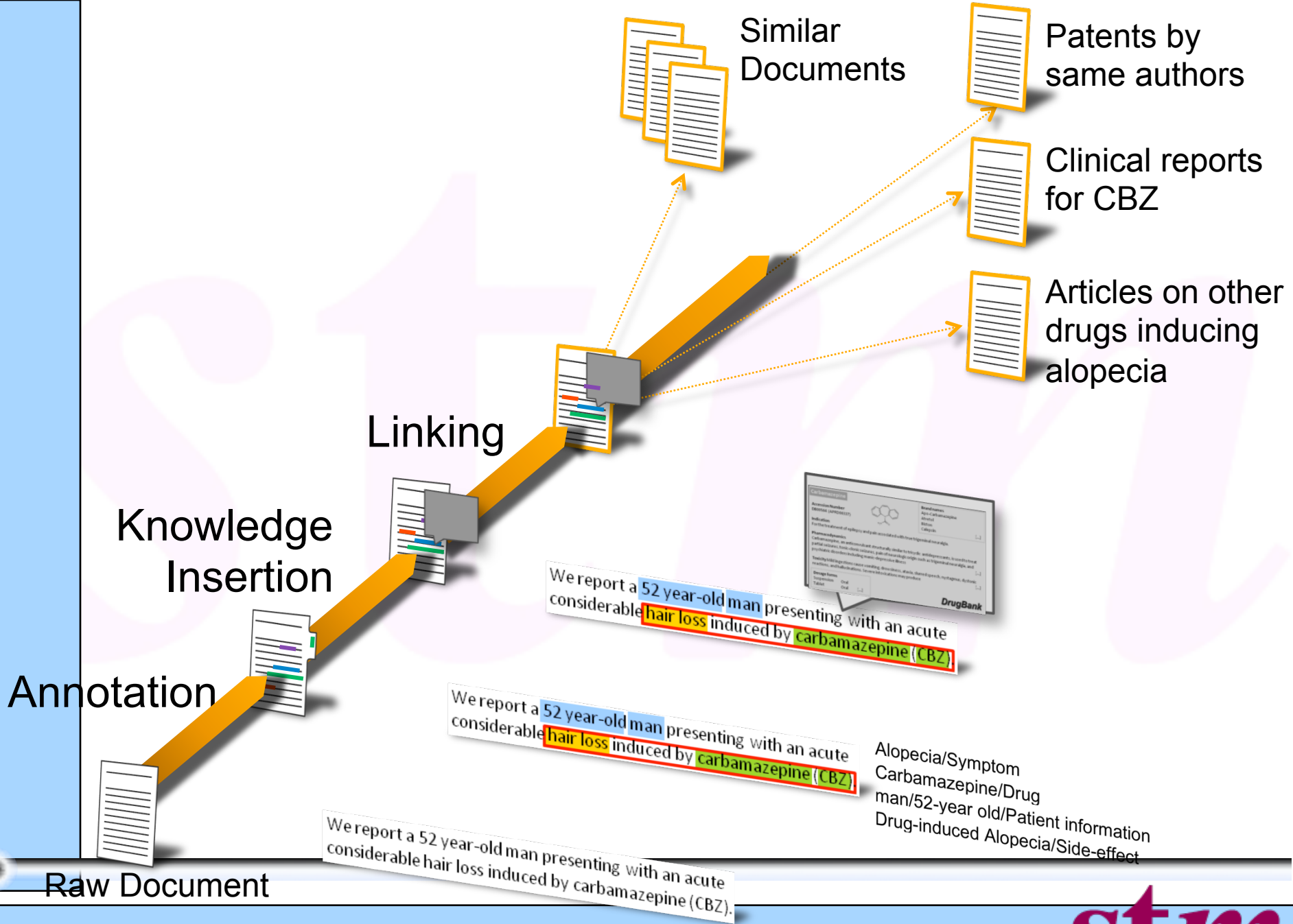
Kohno Y Ishii A Shoji S

### Organizations

Dept of Clinical Neurology, Tsukuba University

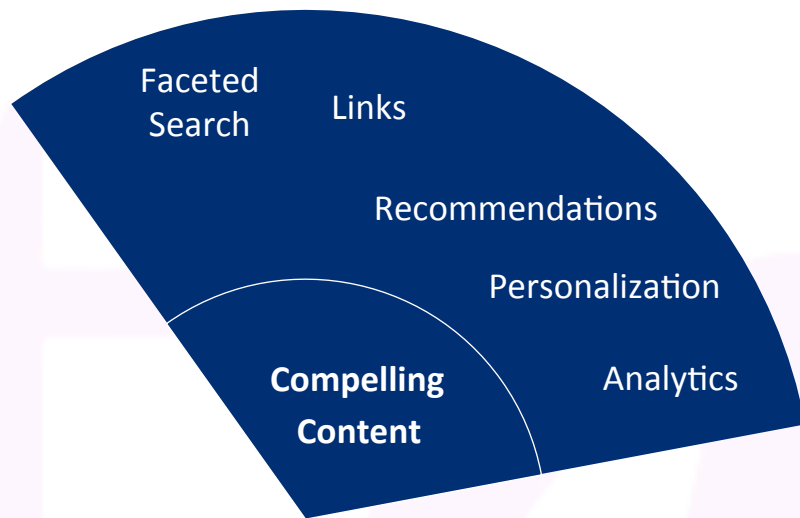
### Side-effect Relationships

Drug-induced alopecia



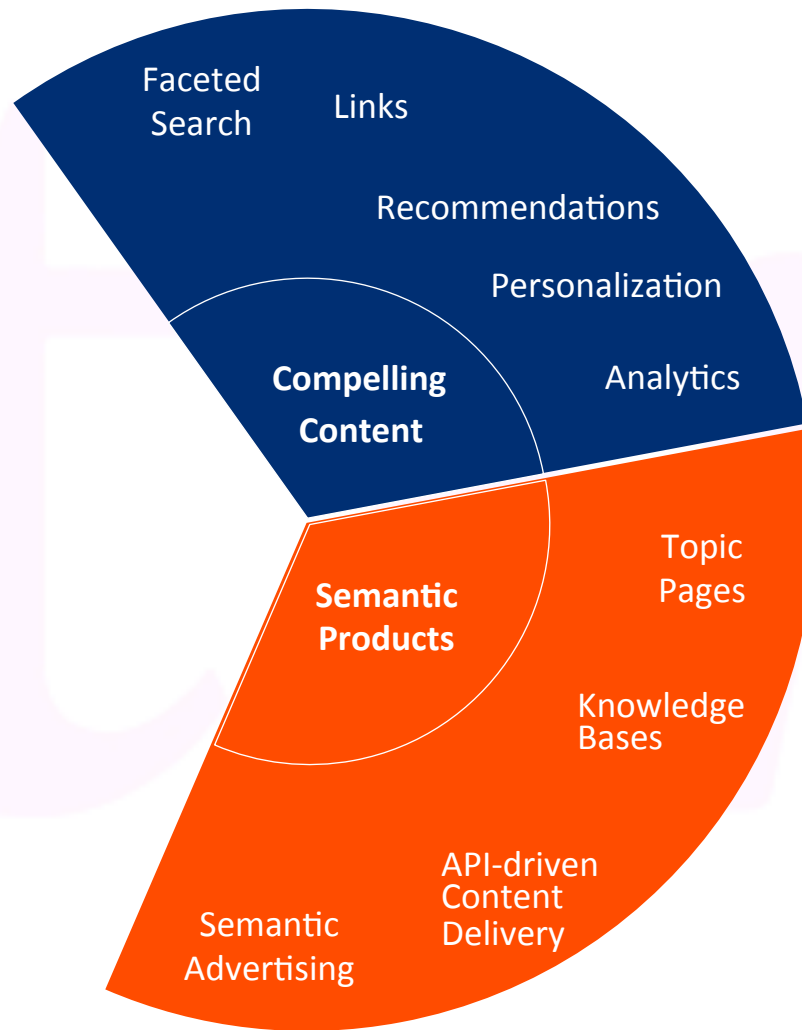


# Why?

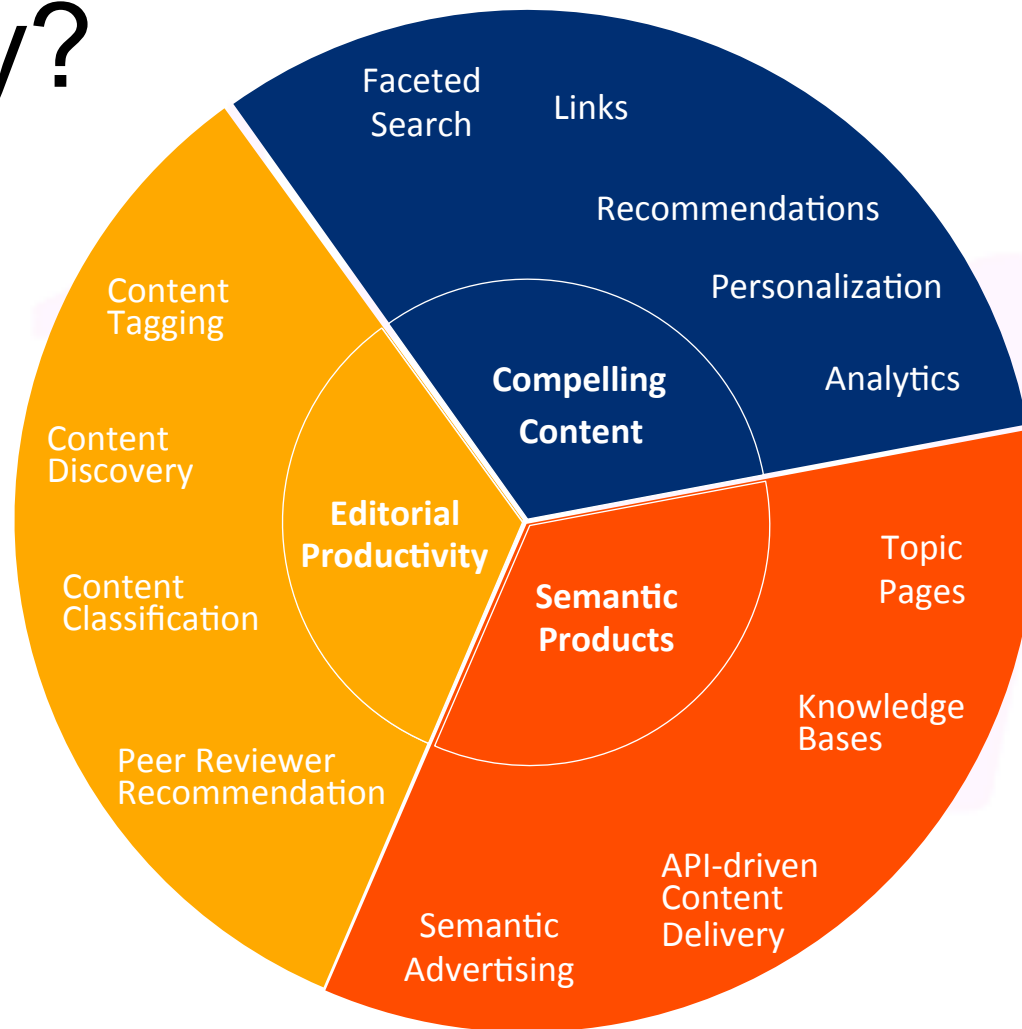




# Why?



# Why?



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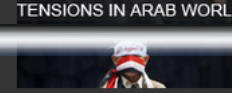
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## Program Profile — Airbus A319/A320/A321



### Airbus A319/A320/A321 At-A-Glance

The A320 launched this family of twin-turbofan, narrowbody airliners, making its first flight in February, 1987 with deliveries following in 1988. Initial deliveries of the stretched A321 occurred in 1994. The shorter A319 entered service in 1996. All models are available with a choice of a CFM International CFM56 variant or International Aero Engines V2500 engines. The A319 typically seats 124 passengers, the A320 carries 150, and the A321 seats 185. Through 2008, Airbus delivered 1,133 A319s, 2,036 A320s, and 448 A321s. Including all three models, production of 3,395 aircraft is forecast from 2009 through 2018. The direct competition for the A320 family is the Boeing 737 series as well as the newly launched Bombardier CSeries.

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Mark Lehrer

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organizational forms of  
rch scientists even  
The analysis charts the  
980s) to more promising  
emergent networks (1970s) as organizational vehicles for conducting biotechnology innovation. A  
constant of German R&D policy for most of the 20th century, and one underlying the initial reliance on  
corporatist networks in biotechnology, was the tendency to exclude universities from major R&D



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NATURE STRUCTURAL & MOLECULAR BIOLOGY

# The splicing factor SRSF1 proliferation to promote mammary transformation

Olga Anzuków, Avi Z Rosenberg, Martin Akermark, Muthuswamy & Adrian R Krainer

Affiliations | Contributions | Corresponding author

Nature Structural & Molecular Biology 19, 220–228 (2011) | Received 21 March 2011 | Accepted 16 November 2011

## Highlighting tool

Genes and Proteins

Serine/arginine-rich splicing factor 1  
**SRSF1**  
*Homo sapiens*

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## Abstract

Abstract • Introduction • Results • Discussion • Author information • Supplementary Information

The splicing-factor oncoprotein **SRSF1** (also known as **SF2/ASF** or **ASF/SF2**) is upregulated in breast cancers. We investigated the ability of **SRSF1** to transform human and mouse mammary epithelial cells *in vivo* and *in vitro*. **SRSF1**-overexpressing COMMA-1D cells formed tumors, following orthotopic transplantation to reconstitute the mammary gland. In three-dimensional (3D) culture, **SRSF1**-overexpressing MCF-10A cells formed larger acini than control cells, reflecting increased proliferation and delayed apoptosis during epigenetic

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**Q07955** (SRSF1\_HUMAN) Reviewed, UniProtKB/Swiss-Prot  
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Clusters with 100%, 90%, 50% identity 1 Documents (6) 1 Third-party data

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### Names and origin

|                      |   |
|----------------------|---|
| Protein names        | <b>Recommended name:</b><br>Serine/arginine-rich splicing factor 1<br><b>Alternative name(s):</b><br>Alternative-splicing factor 1<br>Short name: ASF-1<br>Splicing factor, arginine/serine-rich 1<br>pre-mRNA-splicing factor SF2, P33 subunit |
| Gene names           | <b>Name:</b> SRSF1<br><b>Synonyms:</b> ASF, SF2, SF2P33, SFRS1<br><b>ORF Names:</b> OK/SW-cl.3  |
| Organism             | <b>Homo sapiens (Human)</b>   |
| Taxonomic identifier | <b>9606 [NCBI]</b>  |
| Taxonomic lineage    | Eukaryota > Metazoa > Chordata > Craniata > Vertebrata > Euteleostomi > Mammalia > Eutheria > Euarchontoglires > Primates > Haplorhini > Catarrhini > Hominoidea > Homo   |

### Protein attributes

|                     |   |
|---------------------|---|
| Sequence length     | 248 AA.   |
| Sequence status     | Complete.   |
| Sequence processing | The displayed sequence is further processed into a mature form. |
| Protein existence   | <a href="#">Evidence at protein level</a>                       |

### General annotation (Comments)

|                                 |   |
|---------------------------------|---|
| Function                        | Plays a role in preventing exon skipping, ensuring the accuracy of splicing and regulating alternative splicing. Interacts with other spliceosomal components, via the RS domains, to form a bridge between the 5'- and 3'-splice site binding components, U1 snRNP and U2AF. Can stimulate binding of U1 snRNP to a 5'-splice site-containing pre-mRNA. Binds to purine-rich RNA sequences, either the octamer, 5'-RGAAGAAC-3' (r=A or G) or the decamer, AGGACAGAGC/AGGACGAAGC. Binds preferentially to the 5'-CGAGGCG-3' motif <i>in vitro</i> . Three copies of the octamer constitute a powerful splicing enhancer <i>in vitro</i> , the ASF/SF2 splicing enhancer (ASE) which can specifically activate ASE-dependent splicing. Isoform ASF-2 and isoform ASF-3 act as splicing repressors. <a href="#">(Ref:11)</a> <a href="#">(Ref:12)</a>   |
| Subunit structure               | Consists of two polypeptides of p32 and p33. <i>In vitro</i> , self-associates and binds SRSF2, SNRNP70 and U2AF1 but not U2AF2. Binds SREK1/SFRS12. Interacts with SAFB/SAFB1. Interacts with PSIP1/LEDGF. Interacts with SRPK1. Identified in the spliceosome C complex. Interacts with SRSRC1 (via Arg/Ser-rich domain). Interacts with ZRSR2/UZAF1-RS2. Interacts with CCDC35 (via C-terminus). Interacts with SRPK1 and a sliding docking interaction is essential for its sequential and processive phosphorylation by SRPK1. <a href="#">(Ref:10)</a> <a href="#">(Ref:13)</a> <a href="#">(Ref:14)</a> <a href="#">(Ref:15)</a> <a href="#">(Ref:16)</a> <a href="#">(Ref:17)</a> <a href="#">(Ref:18)</a>  |
| Subcellular location            | <b>Cytoplasm. Nucleus speckle.</b> Note: In nuclear speckles. Shuttles between the nucleus and the cytoplasm. <a href="#">(Ref:10)</a> <a href="#">(Ref:20)</a> <a href="#">(Ref:22)</a>  |
| Domain                          | The RRM2 domain plays an important role in governing both the binding mode and the phosphorylation mechanism of the RS domain by SRPK1. RS domain and RRM2 are uniquely positioned to initiate a highly directional (C-terminus to N-terminus) phosphorylation reaction in which the RS domain slides through an extended electronegative channel separating the docking groove of SRPK1 and the active site. RRM2 binds toward the periphery of the active site and guides the directional phosphorylation mechanism. Both the RS domain and an RRM domain are required for nucleocytoplasmic shuttling. <a href="#">(Ref:11)</a> <a href="#">(Ref:14)</a>   |
| Post-translational modification | Phosphorylated by CLK1, CLK2, CLK3 and CLK4. Phosphorylated by SRPK1 at multiple serines in its RS domain via a directional (C-terminal to N-terminal) and a dual-track mechanism incorporating both processive phosphorylation (in which the kinase stays attached to the substrate after each round of phosphorylation) and distributive phosphorylation steps (in which the kinase and substrate dissociate after each phosphorylation event). The RS domain of SRSF1 binds to a docking groove in the large lobe of the kinase domain of SRPK1 and this induces certain structural changes in SRPK1 and/or RRM2 domain of SRSF1, allowing RRM2 to bind the kinase and initiate phosphorylation. The cycles continue for several phosphorylation steps in a processive manner (steps 1-8) until the last few phosphorylation steps (approximately steps 9-12). During that time, a mechanical stress induces the unfolding of the beta-4 motif in RRM2, which then docks at the docking groove of SRPK1. This also signals RRM2 to <a href="#">(Ref:11)</a> <a href="#">(Ref:12)</a> <a href="#">(Ref:13)</a> <a href="#">(Ref:14)</a> <a href="#">(Ref:15)</a> <a href="#">(Ref:16)</a> <a href="#">(Ref:17)</a> <a href="#">(Ref:18)</a> <a href="#">(Ref:19)</a> <a href="#">(Ref:20)</a> <a href="#">(Ref:21)</a> <a href="#">(Ref:22)</a> |

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|-----|---|--------|--------------------------------|---------------|---------|---------------|------------|----|----|----|--|
| 1.  | <b>SRSF1</b><br><b>Synonyms:</b> ASF, FLJ53078, MGC5228, SF2, SF2p33, SFRS1, SRp30a<br><b>Description:</b> serine/arginine-rich splicing factor 1 | Mb     | LifeSpan BioSciences, Inc.     | LS-B2340      |         | Monoclonal    | ●          |    | ●  | ●  |  |
|     |   |        | [5] <a href="#">Show All ▶</a> | LS-B3263      |         | Monoclonal    | ●          |    | ●  |    |  |
|     |   |        | Novus Biologicals              | H00006426-B01 |         | Polyclonal    | ●          | ●  |    |    |  |
|     |   |        | [3] <a href="#">Show All ▶</a> | NBP1-19093    |         | Polyclonal    | ●          |    |    | ●  |  |
|     |   |        | Proteintech Group              | 12929-2-AP    |         | Polyclonal    | ●          | ●  |    |    |  |
|     |   |        | [1]                            | Sigma-Aldrich | AV40691 |               | Polyclonal |    |    |    |  |
|     |   |        | [3] <a href="#">Show All ▶</a> | AV40692       |         | Polyclonal    |            |    |    |    |  |
|     |   |        | GenWay                         | 18-003-44211  |         | Polyclonal    | ●          |    |    |    |  |
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Facilitates exploration

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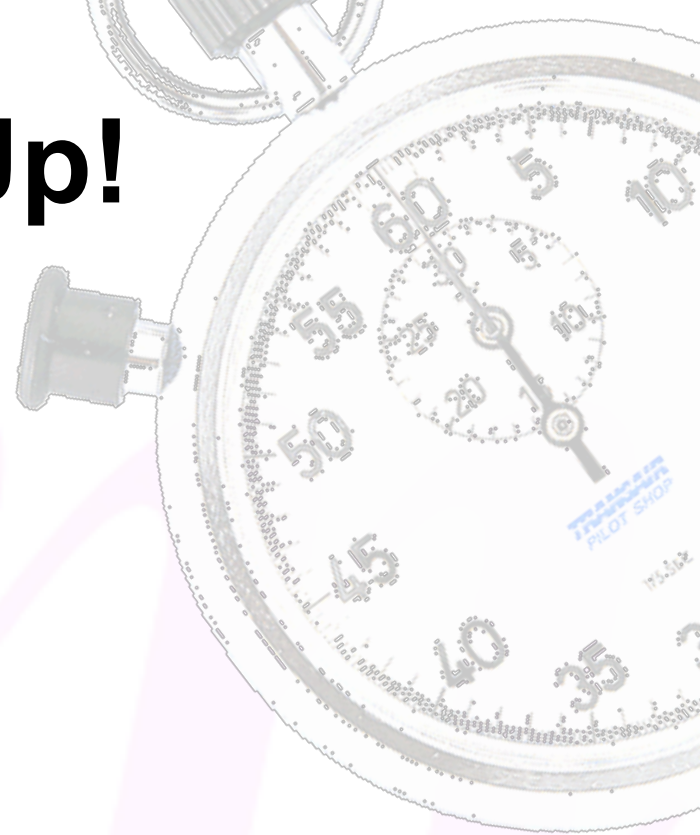
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