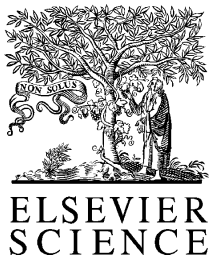


Product specification
for
CITADEL (CITAtions D'ELsevier)

Version 1.0

Author Paul Mostert

Date December 2000

Contents

1 Introduction

In *CITADEL (CITAtions D'ELsevier)* datasets are structured and formatted according to the *EFFECT - Exchange Format For Electronic Components and Texts* standard. The *EFFECT* standard (detailed in *EFFECT Technical Specifications Version 4.0*, October 1995, available via the ScienceDirect Support Website at **`support.sciencedirect.com`** ⇨ Technical ⇨ Effect) is a generic standard. A number of products apply to this standard, *CITADEL* being one of those. *This* document describes specifically how to interpret *EFFECT 4.0* for use in *CITADEL*, and highlights particular details. A general understanding of *EFFECT* is assumed.

1.1 Background

Elsevier Science converted its traditional production methods to generic computer-aided facilities, particularly aiming to be able to deal with the demands of electronic online publishing, imposed by the World Wide Web and associated facilities.

1.2 Relationship of CITADEL with ScienceDirect OnSite (SDOS)

CITADEL is an "abstract-only" products. CITADEL comprises all journal issues produced by Elsevier Science in one given week, regardless of subscription profile for a given customer. It consists of the following components:

- SGML citation files, containing bibliographic data for editorial items;
- **`dataset.toc`** file pertaining to *EFFECT 4.0* specifications.

The ScienceDirect OnSite (SDOS) product is a "full text" product. The product is "customized" to the journal subscription profile of a customer, i.e., only material of those journals that match the customer's subscription list are included. The current SDOS version 2.1 comprises of the following components:

- PDF files, each containing an editorial item in either "wrapped" or "true" format;
- Raw ASCII text files, each containing an editorial item in either "wrapped" or "true" format;
- SGML citation files, containing bibliographic data for editorial items, and also all article references in a structured format;
- **`dataset.toc`** file pertaining to *EFFECT 4.0* specifications.

2 Dataset components

This chapter details the different file components, which are available in *CITADEL* datasets. The next chapters explains how these files are related.

2.1 "dataset.toc" file

Each *CITADEL* dataset has one master index file, or "dataset.toc" file, with complete bibliographic information as well as all relevant cross reference data, e.g., which PDF and SGML files are related to which articles and/or journal issues. The **`dataset.toc`** file will be detailed further in Chapter 4 at page 5.

2.2 SGML Citation files

The SGML files that are delivered in *CITADEL* datasets contain the full bibliographic data (article title, abstract, author names, keywords, etc.). Those files can be recognized by the file extension **`.sgc`** An example of such a file can be found in chapter 4.7 at page 12.

The DTD's to which the SGML files pertain are available separately via the EFFECT support page in ScienceDirect's Support Website at **`support.sciencedirect.com`** ⇨ Technical ⇨ SGML/DTD or upon request.

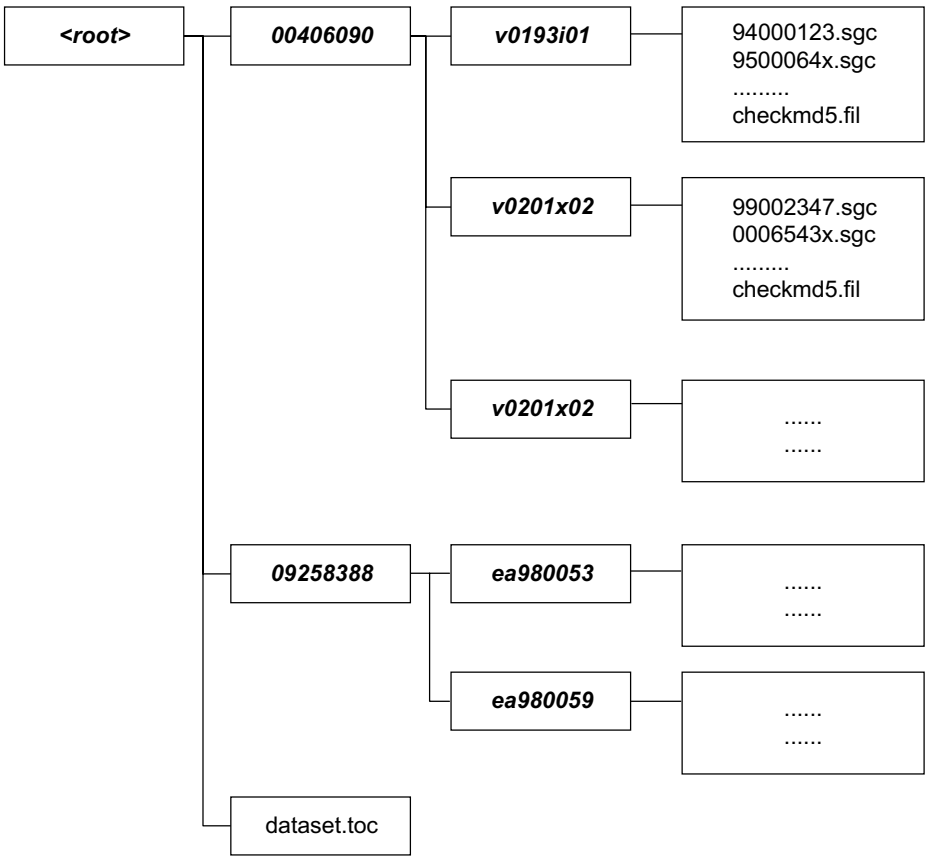
2.3 "checkmd5.fil" files

The **`checkmd5.fil`** files will follow the structure and format set forth in the *EFFECT Technical Specification 4.0* document.

3 Dataset contents

3.1 Dataset directory structure

An example of a *CITADEL 1.0* dataset:



All material from a particular journal title is collected in a directory at the journal title level. The directory name is identified with an eight character code, formed by taking the ISSN of the journal omitting the dividing dash. In the above example, the directory **`/00406090`** holds material of the journal *Thin Solid Films* (ISSN is *0040-6090*).

Every journal issue is available in a subdirectory within the journal title directory. The directory name is identified by a unique journal issue identifier, e.g., in the above example **`/v0193i01`** and **`/ea980053`**.

3.2 Available files

Each directory at the second, journal issue level holds a number of files:

- Files ending in **`.sgc`** are the SGML files with the bibliographic data of an editorial item, e.g. **`94000123.sgc`** in the above example.

  Please note that not all editorial items have an associated **`.sgc`** file. Only editorial items with an item type for which there is a Document Type Definition (DTD) available, will have an **`.sgc`** file. See also the **`_ty`** field described at page 8.

- Each directory, except the root directory, holds the file **checkmd5.fil** which provides a "digital signature" for each file in that directory.

Note that the name parts of **.sgc** files of one editorial item do not necessarily need to share the same name. The relationships between those files and their editorial item is clearly defined with the **_mf** tags in the **dataset.toc** file (see page 9).

4 The “dataset.toc” file

The **dataset.toc** file, available in the <root> directory of a *CITADEL* dataset, provides all relationships between journal titles, journal issues, the editorial items and all their associated files. The structure and content of the **dataset.toc** file is described in detail in the *EFFECT Technical Specifications 4.0* document. This chapter lists the specific tags available in *CITADEL 1.0* datasets. If a tag has a special meaning which is different from the *EFFECT 4.0* specifications or has other noteworthy properties, this is listed here. Otherwise, there is only the reference *“see EFFECT 4.0"*.

4.1 The “Dataset”-level (_t0)

_t0 *{Mandatory}* Start of the “Dataset”-level. The 8-character **_t0** value has the following format:

- The first three characters form the CITADEL code, e.g. **CIT**, **CIB**
- The following four characters is a sequence number, e.g. **0123**
- An extra character to ease splitting of large datasets across smaller several delivery media, and still get unique dataset identifiers. For instance, a large dataset can be spread across more than one CD-Rom or magnetic tape. The first CD-Rom or tape gets as the last character **A** or **0**, the second one gets **B** or **1**, etc. Each “sub”-dataset on a CD-Rom or tape is “complete” in that it contains its own **dataset.toc** file.

_vn *{Mandatory} EFFECT* version number of dataset; *see EFFECT 4.0*

_pd *{Mandatory}* Production date of dataset; *see EFFECT 4.0*

4.2 The “Journal Title”-level (_t1)

_t1 *{Mandatory}* Start of journal title; *see EFFECT 4.0*

_jn *{Mandatory}* The full name of the journal; *see EFFECT 4.0*

_jo *{if available}* The former journal name

_io *{if available}* The former journal ISSN without the dividing dash

Notes

1. In the case of a “merger” of two or more journals, the **_jo** and **_io** fields will be repeated to denote the separate original titles. This is a widening of the *EFFECT 4.0* specifications. An example:

```
_t1 ABC0001A 13871811
_jn Microporous and Mesoporous Materials
_jo Zeolites
_io 01442449
_jo Microporous Materials
_io 09276513
```

   indicates that the journal *Microporous and Mesoporous Materials* (ISSN: 1387-1811) is a merger of the former journal titles *Zeolites* (ISSN 0144-2449) and *Microporous Materials* (ISSN 0927-6513).

2. The **_jo** and **_io** fields are not necessarily associated. If only the title **_jn** has changed and the ISSN remained the same, then only **_jo** is given. If only the ISSN has changed and the journal title was not changed, only the **_io** is given

3. Please note that if you consider applying the **_io** field to link to the former journal title, journal data of the former title is actually available in your library system, since the title change could have taken place before you started to subscribe to this journal.

_jf *{if available}* The full set journal name; *see EFFECT 4.0*

_if *{if available}* The full set journal ISSN without the dividing dash; *see EFFECT 4.0*

_pu *{if available}* The publisher; *see EFFECT 4.0*

_ci *{if available}* The publisher's city and country; *see EFFECT 4.0*

_im *{if available}* The journal imprint; *see EFFECT 4.0*

_et *{if available}* The Editorial Board titles; *see EFFECT 4.0*

_em *{if available}* Editorial Board Member; *see EFFECT 4.0*

_ia *{if available}* The Instructions to Authors specification; *see EFFECT 4.0*

_cr *{if available}* The copyright notice of a journal; *see EFFECT 4.0*

4.3 The "Journal Issue"-level (_t2)

_t2 *{Mandatory}* Start of journal issue; *see EFFECT 4.0*

_vl *{Mandatory}* Volume number(s); *see EFFECT 4.0*

_is *{if available}* Issue number(s); *see EFFECT 4.0*

The **_vl** and **_is** fields are always numeric and uniquely identify an issue. All alphabetic characters are removed from volume and issue as they appear on the cover. For instance *Volume A523* will be represented by **_vl 523** The result is that those fields can differ from corresponding cover volume/issue numbers.

_pr *{if available}* The starting and ending page numbers; *see EFFECT 4.0*

_cf *{if available}* Certain journal issues are dedicated to a specific subject or are related to an event such as a conference, a symposium or a workshop. Generally these journal issues are referred to as "special issues". The title of the subject and/or event is clearly presented on the front cover of special issue. The **_cf** field contains the title of the journal issue in the case of a special issue, i.e., the particular physical issue is devoted to the proceedings of a conference, symposium or another event, or the journal issue covers a certain subject.

The **_cf** tag is followed by a code, enclosed in square brackets, which characterizes the individual details. Valid codes are:

[name] {Mandatory if there is a **_cf** group for this journal issue} The full title of the special issue or the name of the conference.

[abbrev] The official abbreviation of the conference name (if any).

[number] The conference number if the conference is part of a repeating series of conferences.

[place] The conference location (city, region, etc.).

[date] The date of the conference/symposium/etc. in the format *YYYYMMDD*, if the special issue is dedicated to an event, in which *YYYY* denotes the year, *MM* the month and *DD* the day in the month. This field follows the same rules for date ranges as the **_dt** field.

[editor] *{Repeating}* The editor(s) of the special issue. This field is repeated as often as there are editors for this issue, or the editors are listed together in this field.

Examples

```
_cf [name] Proceedings of the Third International Conference
    on Osteoporosis held by the Health Council on Osteoporosis
_cf [abbrev] Osteoporosis III
_cf [place] Paris, France
_cf [date] 19991020/24
_cf [editor] J. Jansma
_cf [editor] P. Petersen

_cf [name] Special Issue: Papers presented at the Second
    European Seminar on Infrared Spectroscopy
_cf [abbrev] ESIS '98
_cf [place] Lyon, France
_cf [date] 19980630/0703

_cf [name] Special Issue: Flow Injection. Analysis
    State of the Art Applied to Atomic Spectroscopy

_cf [name] Special Issue: Celebrating The Centenary of
    Runge-Kutta Methods

_cf [name] Special Issue on Fuzzy Optimization

_cf [name] A Collection of Invited Papers by Japanese
    Researchers

_cf [name] Special Issue: The Backus Fest: A Collection of
    Papers To Honor George Backus

_cf [name] Accelerators, Spectrometers, Detectors and
    Associated Equipment

_cf [name] Special Issue: Proceedings of the Workshop on
    III-V Nitrides
```

_xt *{if available}* Extra information about the particular journal issue; *see EFFECT 4.0*

_dt *{Mandatory}* The issue date of the journal issue; *see EFFECT 4.0*

_np *{Mandatory}* The total number of physical pages in the journal issue; *see EFFECT 4.0*

_pn *{Mandatory}* The actual printed page numbers of the journal issue; *see EFFECT 4.0*

_ct *{if available}* The pages in the journal issue on which the table of contents is printed; *see EFFECT 4.0*

4.4 The “Editorial Item”-level (_t3)

_t3 *{Mandatory}* Start of editorial item; *see EFFECT 4.0*

_ii *{Mandatory}* Item Identifier (PII); *see EFFECT 4.0*

_ty *{Mandatory}* The type of the editorial item; *see EFFECT 4.0*

The following item types are supported in *CITADEL 1.0* datasets:

- **ABS** Abstract only *(for this item type a SGML file can be available; see below for more detail in the* **_mf [SGML Cit]** *description)*
- **ADD** Addendum
- **BRV** Book review
- **CNF** Conference paper *(this is an extra publication type, not defined in EFFECT 4.0)*
- **COR** Correspondence
- **DIS** Discussion
- **EDI** Editorial
- **ERR** Erratum *(for this item type a SGML file can be available; see below for more detail in the* **_mf [SGML Cit]** *description)*
- **FLA** Full length article *(for this item type a SGML file can be available; see below for more detail in the* **_mf [SGML Cit]** *description)*
- **IND** Index *(this is an extra publication type, not defined in EFFECT 4.0)*
- **OCN** Other contents *(this is an extra publication type, not defined in EFFECT 4.0)*
- **PNT** Patent report *(this is an extra publication type, not defined in EFFECT 4.0)*
- **PRV** Product review
- **REQ** Request for assistance *(this is an extra publication type, not defined in EFFECT 4.0)*
- **REV** Review article *(for this item type a SGML file can be available; see below for more detail in the* **_mf [SGML Cit]** *description)*
- **SCO** Short communication *(for this item type a SGML file can be available; see below for more detail in the* **_mf [SGML Cit]** *description)*
- **SSU** Short survey *(for this item type a SGML file can be available; see below for more detail in the* **_mf [SGML Cit]** *description)*
- **MIS** Miscellaneous

Please note, that other item types can be included in the course of time.

_li *{if available}* The language of the item; *see EFFECT 4.0*

_ti *{if available}* The full title of the item; *see EFFECT 4.0*

_tf *{if available}* The foreign language title of the item; *see EFFECT 4.0*

_au *{if available}* Author name; *see EFFECT 4.0*

_ca *{if available}* The full address for correspondence with the author(s); *see EFFECT 4.0*

_ab *{if available}* The full English abstract of the item; *see EFFECT 4.0*

_la *{if available}* Language of the abstract; *see EFFECT 4.0*

_kw *{if available}* Keyword(s) which apply to the item; *see EFFECT 4.0*

_pg *{if available}* Printed page numbers on which the item appeared in the journal issue; *see EFFECT 4.0*

_br *{if available}* Backward reference to another editorial item; *see EFFECT 4.0*

_mf *{Mandatory}* Manifestation format.

_mf [SGML Cit] SGML file which contains the bibliographic details (e.g., article title, abstract, keywords, author names, etc). The name of these files are associated with a file with extension **.sgc**

Notes

1. You will notice that the (physical) names of **.sgc** files could be different from the last field in the **_t3** field (the logical journal issue identifier), and even be different from each other. This is caused by the production method in which we mix material coming from different sources into one dataset.

   You will also note that in some cases even the **_ii** (in most cases equivalent to fields 2 + 4 from the **_t3** field with extra "( ) -" delimiters) and the **_t3** fields do not match in cases that articles are republished from other sources. For instance, an article which is later presented in a conference and is republished in the conference proceedings.

   Conceivably, the following snippet of a **dataset.toc** is possible:

   ```
   _t3 ABC0001A 00406090 V0123I02 01234567
   _ii S0192-8388(98)12345-X
   ......
   _mf [SGML Cit] 100mnp90
   ```

   The **_mf** field specifies the files associated with an article. The **_t3** field is an internal *EFFECT* code for specifying different articles, it should *not* be used as an indicator for files. In essence, the observation that **_t3**, **_ii** and **_mf** are identical should be regarded as a coincidence.

2. It is possible that **.sgc** is not available for some particular editorial items. See also Chapter ? at page ?.

4.5 Example of an article

First page with the bibliographic details

FEBS 23531 FEBS Letters 471 (2000) 147–150

Site-specific recombination in mammalian cells catalyzed by γδ resolvase mutants: implications for the topology of episomal DNA

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Edited by Gianni Cesareni

Abstract We have transferred the prokaryotic γδ resolvase system to mammalian cells and present a comparative analysis of recombination by wild-type and two mutant resolvases (E124Q and E102Y/E124Q). Transient co-transfection assays using β-galactosidase as reporter for recombination reveal that episomal DNA does not contain a significant level of unconstrained negative supercoiling, since only mutant resolvases are recombination-proficient. We also show that the efficiency of recombination by the resolvase double mutant is comparable to that observed with Cre, which indicates that resolvase can be used as a new tool for controlled manipulations of episomal DNAs.

Key words: Site-specific recombination; γδ resolvase; Mutant recombinase; Eukaryote; Episomal DNA; DNA topology

1. Introduction

The bacterial γδ (Tn*1000*) transposon-encoded resolvase belongs to the resolvase/invertase sub-family of conservative site-specific DNA recombinases. Its natural function is to resolve, through recombination, the co-integrate structure that is generated during transposition [1]. Resolvase recognizes a 114 bp DNA segment called res, which is composed of three binding sites (I–III) for resolvase dimers. Two res must be present as direct repeats on the same negatively (−) supercoiled DNA molecule. Only this orientation of sites allows for the formation of a functional synaptic complex, the so-called synaptosome, which entraps three (−) supercoils [2]. Intramolecular recombination catalyzed within the synaptosome thus results in excision of the DNA segment between res sites.

An important prerequisite for efficient recombination by wild-type resolvase in *Escherichia coli* and in vitro is the presence of unconstrained (−) supercoiling in the substrate. Supercoiling is required for the assembly of a functional synaptosome and, in addition, energetically drives the DNA strand exchange reaction once the DNA has been cleaved at sub-binding sites I of the paired res [3]. We have transferred the resolvase system to mammalian cells and employ in this study wild-type and two γδ resolvase mutants, E124Q and double mutant E102Y/E124Q. Both mutants are homologs of two previously characterized Tn*3* resolvase mutants and exhibit the same phenotype, i.e. they efficiently perform recombination in vitro on topologically relaxed DNA substrates containing two copies of res [4]. The double mutant, in addition, is proficient at catalyzing recombination on substrates containing two isolated I sites of res as direct or inverted repeats. However, the efficiency of the latter reaction is still significantly enhanced by (−) supercoiling of the substrate [4]. A comparative study of recombination by wild-type and mutant resolvase inside mammalian cells should therefore help to further elucidate the topological state of episomal and, eventually, genomic DNA.

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E-mail: p.droege@uni-koeln.de

Abbreviations: res, γδ recombination site; lox, Cre recombination site; β-gal, β-galactosidase activity

2. Materials and methods

2.1. Expression and substrate vectors

Expression vectors for wild-type and mutant resolvases are derivatives of pPGKCre (K. Fellenberg, University of Cologne). The resolvase genes were cloned by PCR using primers (P-γδA) 5′-GATACTGCAGCATGCGACTTTTTGGTTACGCACGGGTATCA-3′, (P-γδB) 5′-GATATCTAGATTAGTTGCTTTCATTTATTACTTTATA-3′, (P-γδ124Q) 5′-CGACAGAGAATACTACAGCGTACCAATGAA-3′, (P-γδ124Qanti) 5′-TTCATTGGTACGCTGTAGTATTCTCTGT-CG-3′, (P-γδ102Y) 5′-AGTACCGATGGGTATATGGGTAAAAT-GGTT-3′, (P-γδ102Yanti) 5′-AACCATTTTACCCATATACCCAT-CGGTACT-3′, and (P-2972) 5′-CATATCTAGACTATTAAAC-CTTCCTCTTCTTCTTAGGGTTGCTTTCATTTATTACTTTATA-3′. Wild-type resolvase was generated with primers P-γδA and P-γδB, and DNA isolated from *E. coli* strain DH5α, which contains the γδ transposon on the F′ plasmid, served as template. The nuclear localization signal (NLS) variant (pPGKγδNLS) was generated using P-2972 instead of P-γδB. The resulting PCR fragments replaced the Cre gene in pPGKCre, using *Xba*I and *Pst*I. pPGKγδ124 was generated by assembly PCR using P-γδA and P-γδ124Qanti, as well as P-γδB and P-γδ124Q as primer pairs. pPGKγδ served as template. pPGKγδ102 was also generated by assembly PCR using P-γδA and P-γδ102Y, as well as P-γδB and P-γδ102Yanti as primer pairs. pPGKγδ124 served as template. The corresponding NLS-carrying variants were generated as described for pPGKγδNLS.

Substrate vectors are derivatives of pCH110 (Pharmacia). First, the prokaryotic promoter driving the *lacZ* gene in pCH110 was deleted by PCR and the *lacZ* gene was re-inserted. The neomycin gene was isolated from pSV2Neo [5] using *Sma*I and *Bgl*II, and subsequently flanked by two res sites which were generated by PCR employing pZWX1 [6] as template. After ligation, the res-neo-res cassette was cleaved with *Hin*dIII and inserted between the SV40 promoter and the *lacZ* gene of the modified pCH110 vector. The promoter proximal to res was modified at two residues in order to eliminate two ATGs, thus generating pCH-RNRZ. pCH-SNSZ and pCH-RLNRLZ are derivatives of pCH-RNRZ, and were generated by PCR. The corresponding recombined product vectors of pCH-RNRZ and pCH-RLNRLZ were generated through transformation into DH5α or 294-Cre [7], respectively. pCH-SZ was generated by PCR.

Plasmid DNAs were isolated from *E. coli* strains JC5547, BMH8117, DH5α or 294-Cre using affinity chromatography (Qiagen, Germany). Expression and substrate vectors were sequenced using the fluorescence-based 373A system (Applied Biosystems). PCRs were usually performed with 30 cycles using the 'Master MixQ Kit' (Qiagen, Germany). The reaction temperatures were calculated based on

PII: S0014-5793(00)01394-6

4.6 Example of the associated “dataset.toc” file

```
_t0 TST0123A
_vn 4.0
_pd 20000707

_t1 TST0123A 00145793
_jn FEBS Letters
_cr Copyright (c) 2000 Elsevier Science Ltd

_t2 TST0123A 00145793 V0471I02
_vl 471
_is 2-3
_cf [name] Special Issue: Topology of DNA
_pr 125-266
_dt 20000714
_np 152
_pn nil nil nil nil 125 126 127 128 129 130 131 132 133 134 135 136
    137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152
    153 154 .......etc..... 255 256 257 258 259 260 261 262 263 264
    265 266 nil nil nil nil nil nil
_ct 3 4

_t3 TST0123A 00145793 V0471I02 00013946
_ii S0014-5793(00)01394-6
_ty FLA
_li EN
_ti Site-specific recombination in mammalian cells catalyzed by
    @c@d resolvase mutants: implications for the topology of
    episomal DNA
_au Schwikardi, M
_au Droge, P
_ca P. Droge, Institute of Genetics, University of Cologne, Weyertal 121,
    D-50931 Cologne, Germany
_ab We have transferred the prokaryotic @c@d resolvase
    system to mammalian cells and present a comparative analysis of
    recombination by wild-type and two mutant resolvases (E124Q and
    E102Y/E124Q). Transient co-transfection assays using
    @b-galactosidase as reporter for recombination reveal that
    episomal DNA does not contain a significant level of unconstrained
    negative supercoiling, since only mutant resolvases are
    recombination-proficient. We also show that the efficiency of
    recombination by the resolvase double mutant is comparable to that
    observed with Cre, which indicates that resolvase can be used as a
    new tool for controlled manipulations of episomal DNAs.
_kw Site-specific recombination
_kw @c@d resolvase
_kw Mutant recombinase
_kw Eukaryote
_kw Episomal DNA
_kw DNA topology
_kw res, @c@d recombination site
_kw lox, Cre recombination site
_kw @b-gal, @b-galactosidase activity
_pg 147-150
_mf [SGML Cit] 00023531
```

4.7 Example of the associated SGML (*.sgc*) file

(Line breaks and indentation are added for clarity)

```
<ART VERSION="4.1.0" JID="FEBS" AID="23531" PII="S0014579300013946" DOCSUBTY="FLA">
    <COPYRIGHT TYPE="SOCIETY" YR="2000">
        Federation of European Biochemical Societies
    </COPYRIGHT>
    <FM>
        <ATL>
            Site-specific recombination in mammalian cells catalyzed by
            &gamma;&delta; resolvase mutants: implications for the topology of
            episomal DNA
        </ATL>
        <DED>Edited by Gianni Cesareni</DED>
        <AUG>
            <AU>
                <FNM>Micha</FNM>
                <SNM>Schwikardi</SNM>
            </AU>
            <AU>
                <FNM>Peter</FNM>
                <SNM>Dr<A><AC>o</AC><AC>&uml;</AC></A>ge</SNM>
            </AU>
            <COR>Corresponding author. Fax: (49)-221-470 5170</COR>
            <EAD>p.droege@uni-koeln.de</EAD>
            <AFF>Institute of Genetics, University of Cologne, Weyertal 121,
                 D-50931 <CTY>Cologne</CTY>, <CNY CNY-CODE="DE">Germany</CNY>
            </AFF>
        </AUG>
        <RE DAY="28" MO="1" YR="2000"> <RV DAY="8" MO="3" YR="2000">
        <ABS>
            <P>We have transferred the prokaryotic &gamma;&delta; resolvase
            system to mammalian cells and present a comparative analysis of
            recombination by wild-type and two mutant resolvases (E124Q and
            E102Y/E124Q). Transient co-transfection assays using
            &beta;-galactosidase as reporter for recombination reveal that
            episomal DNA does not contain a significant level of unconstrained
            negative supercoiling, since only mutant resolvases are
            recombination-proficient. We also show that the efficiency of
            recombination by the resolvase double mutant is comparable to that
            observed with Cre, which indicates that resolvase can be used as a
            new tool for controlled manipulations of episomal DNAs.</P>
        </ABS>
        <KWDG CLASS="KWD">
            <KWD>Site-specific recombination</KWD>
            <KWD>&gamma;&delta; resolvase</KWD>
            <KWD>Mutant recombinase</KWD>
            <KWD>Eukaryote</KWD>
            <KWD>Episomal DNA</KWD>
            <KWD>DNA topology</KWD>
        </KWDG>
        <KWDG CLASS="ABR">
            <KWD>res, &gamma;&delta; recombination site</KWD>
            <KWD>lox, Cre recombination site</KWD>
            <KWD>&beta;-gal, &beta;-galactosidase activity</KWD>
        </KWDG>
    </FM>
</ART>
```

5 Distribution

5.1 Fulfilment frequency

CITADEL is produced on a weekly basis.

5.2 Media options

CITADEL datasets can be delivered on CD-ROM, conforming to the ISO 9660 Mode I standard. CD-Rom's based on this standard are usable in MS-DOS, Apple Macintosh and UNIX operating systems. CD-Rom's will normally be shipped within 24-48 hours of the date given to the customer. All CD-Rom's will be distributed via a service that can provide on-line tracking of package location and provide detailed information on final delivery address and signature.

Alternatively, CITADEL datasets can be transferred via Internet FTP. A single uncompressed TAR file is created containing the directories and files of a CITADEL dataset. This file will be uploaded by automated procedures to an FTP server within your domain. For this, your FTP server name should be supplied, and a username/password should be set up in which Elsevier can upload TAR files. You are responsible to have sufficient disk capacity available for Elsevier to weekly upload these files and that those files are properly backed up. Weekly delivery size forecast is between 10 and 15 Megabytes.