

# Package ‘ProtGenerics’

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**Title** S4 generic functions for Bioconductor proteomics infrastructure

**Description** S4 generic functions needed by Bioconductor proteomics packages.

**Version** 1.10.0

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**biocViews** Infrastructure, Proteomics, MassSpectrometry

**URL** <https://github.com/lgatto/ProtGenerics>

**Depends** methods

**License** Artistic-2.0

**NeedsCompilation** no

## R topics documented:

ProtGenerics	1
<b>Index</b>	<b>4</b>

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ProtGenerics	<i>S4 generic functions for Bioconductor proteomics infrastructure</i>
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## Description

These generic functions provide basic interfaces to operations on and data access to proteomics and mass spectrometry infrastructure in the Bioconductor project.

For the details, please consult the respective methods’ manual pages.

## Usage

```
psms(object, ...)  
peaks(object, ...)  
modifications(object, ...)  
database(object, ...)  
rtime(object, ...)  
tic(object, ...)
```

```
spectra(object, ...)  
intensity(object, ...)  
mz(object, ...)  
peptides(object, ...)  
proteins(object, ...)  
accessions(object, ...)  
scans(object, ...)  
mass(object, ...)  
ions(object, ...)  
chromatograms(object, ...)  
chromatogram(object, ...)  
isCentroided(object, ...)  
writeMSData(object, file, ...)
```

### Arguments

object	Object of class for which methods are defined.
file	for writeMSData: the name of the file to which the data should be exported.
...	Further arguments, possibly used by downstream methods.

### Details

#### When should one define a generics?:

Generics are appropriate for functions that have *generic* names, i.e. names that occur in multiple circumstances, (with different input classes, most often defined in different packages) or, when (multiple) dispatching is better handled by the generics mechanism rather than the developer. The dispatching mechanism will then automatically call the appropriate method and save the user from explicitly calling `package::method` or the developer to handle the multiple input types cases. When no such conflict exists or is unlikely to happen (for example when the name of the function is specific to a package or domain, or for class slots accessors and replacement methods), the usage of a generic is arguably questionable, and in most of these cases, simple, straightforward functions would be perfectly valid.

#### When to define a generic in ProtGenerics?:

ProtGenerics is not meant to be the central package for generics, nor should it stop developers from defining the generics they need. It is a means to centralise generics that are defined in different packages (for example `mzR::psms` and `mzID::psms`, or `IRanges::score` and `mzR::score`, now `BioGenerics::score`) or generics that live in a rather big package (say `mzR`) on which one wouldn't want to depend just for the sake of that generics' definition.

The goal of ProtGenerics is to step in when namespace conflicts arise so as to to facilitate inter-operability of packages. In case such conflict appears due to multiple generics, we would (1) add these same definitions in ProtGenerics, (2) remove the definitions from the packages they stem from, which then (3) only need to import ProtGenerics. This would be very minor/straightforward changes for the developers and would resolve issues when they arise.

More generics can be added on request by opening an issue or sending a pull request on:

<https://github.com/lgatto/ProtGenerics>

### Author(s)

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**See Also**

- The **BiocGenerics** package for S4 generic functions needed by many Bioconductor packages.
- [showMethods](#) for displaying a summary of the methods defined for a given generic function.
- [selectMethod](#) for getting the definition of a specific method.
- [setGeneric](#) and [setMethod](#) for defining generics and methods.

**Examples**

```
## List all the symbols defined in this package:
ls('package:ProtGenerics')

## Not run:
## What methods exists for 'peaks'
showMethods("peaks")

## To look at one method in particular
getMethod("peaks", "mzRpwiz")

## End(Not run)
```

# Index

## \*Topic **methods**

ProtGenerics, 1

accessions (ProtGenerics), 1

chromatogram (ProtGenerics), 1  
chromatograms (ProtGenerics), 1

database (ProtGenerics), 1

intensity (ProtGenerics), 1  
ions (ProtGenerics), 1  
isCentroided (ProtGenerics), 1

mass (ProtGenerics), 1  
modifications (ProtGenerics), 1  
mz (ProtGenerics), 1  
mz<- (ProtGenerics), 1

peaks (ProtGenerics), 1  
peptides (ProtGenerics), 1  
proteins (ProtGenerics), 1  
ProtGenerics, 1  
ProtGenerics-package (ProtGenerics), 1  
psms (ProtGenerics), 1

rtime (ProtGenerics), 1

scans (ProtGenerics), 1  
selectMethod, 3  
setGeneric, 3  
setMethod, 3  
showMethods, 3  
spectra (ProtGenerics), 1

tic (ProtGenerics), 1

writeMSData (ProtGenerics), 1