

RSS Feeds »

Home	Earth	Heavens	Body	Brain	Culture	Tech
------	-------	---------	------	-------	---------	------

### A new quality control pathway in the cell

posted by news on september 18, 2014 - 6:44pm

Share / Save [social icons] Tweet +1 Me gu

Proteins are important **building** blocks in our cells and each cell contains millions of different protein molecules. They are involved in everything from structural to regulatory aspects in the cell. Proteins are constructed as linear molecules but they only become functional once they are folded into specific three-dimensional structures. Several factors, like mutations, **stress** and age, can interfere with this folding process and induce protein misfolding. Accumulated misfolded proteins are toxic and to prevent this, cells have developed quality control systems just like any other production chain or manufacturing process.

A new quality control pathway in the cell

A team of researchers at the Centre for Genomic Regulation in **Barcelona** has just published a paper in *Science* describing a new quality control system in our cells. It is specific to the inner nuclear membrane, a specialised part of the endoplasmic reticulum (ER), a network of membranes that **spreads** throughout the cell and which also forms the nuclear **envelope** that wraps the chromosomes.

(Photo Credit: )

Other quality control systems have been described but exactly how misfolded proteins in the inner nuclear membrane were degraded was not known. Ombretta Foresti, Victoria Rodríguez-Vaello and Pedro Carvalho, from the Organelle Biogenesis and Homeostasis laboratory at the CRG have just described the new system. "We have found that this quality control system has two key functions. It gets rid of misfolded proteins and, surprisingly, it also helps prevent the nucleus accumulating proteins that should not be there", explains Pedro Carvalho, principal investigator of this paper.

The studies have been conducted using a unicellular model organism (Baker's yeast) but they may also apply to human physiology. The newly identified quality control system protects the nucleus by targeting foreign proteins that could enter the nucleus by mistake. This could be particularly significant in non-dividing cells where the inner nuclear membrane is isolated from the rest of the ER for long periods of time

Source: **Center for Genomic Regulation**

#### Related Articles To This One:

- UCLA cancer researchers discover new signaling pathway that controls cell development and cancer
- Stem cells and cancer: cancer pathways that also control the adult stem cell population
- Control of cancer cell pathways key to halting disease spread, Stanford study shows
- Georgetown researchers find stem cell marker controls 2 key cancer pathways
- Cells control energy metabolism via hedgehog signalling pathway



#### You May Like

Sponsored Links by Taboola



Spanish Words As You Have Never Seen Them Before  
Babbel



How to Increase your Income with the Forex Market  
Investingdownunder.com



3 Steps To Make A Man Love You Forever Capture His Heart



17 Celebs Who Have Breast Implants And Don't Hide It!  
AllThingsCeleb



9 Celeb Couples With HUGE Age Differences!  
StarFluff



Top 20 World's Most Beautiful, Peaceful and Safest Countries  
Amerikanki



3 Exercises for Weight Loss in 20 day!!!!  
ThePhysioTherapy



The 30 Most Embarrassing Prom Photos Ever  
Runt of the Web

#### Recent Articles:

- Mothers of children with autism less likely to have taken iron supplements
- Research evaluates neurodevelopmental and medical outcomes in single family room NICU
- E-cigarettes unhelpful in smoking cessation among cancer patients
- UTHealth researchers study impact of smoking ban in homeless shelter
- Teens' neural response to food commercials predicts future weight gain

more

#### Post new comment

Your name: \*

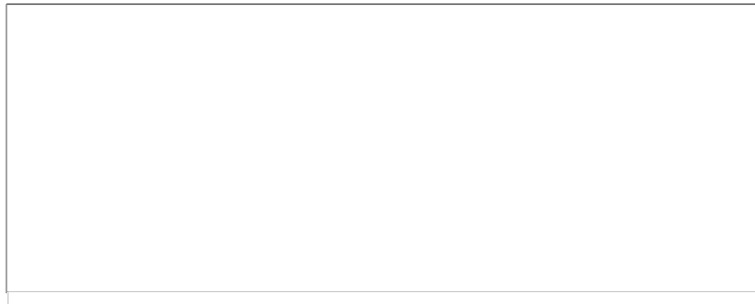
E-mail: \*

The content of this field is kept private and will not be shown publicly.

Homepage:

Comment: \*



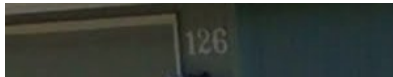


- Allowed HTML tags: <a> <em> <img> <strong> <object> <cite><p><br><i><b><center><ul><li></li></ul></div></html5:figure></html5:figcaption>
- Lines and paragraphs break automatically.

More information about formatting options

CAPTCHA

Sorry, we know you're not a spambot, but they're out there



Type the text

[Privacy & Terms](#)

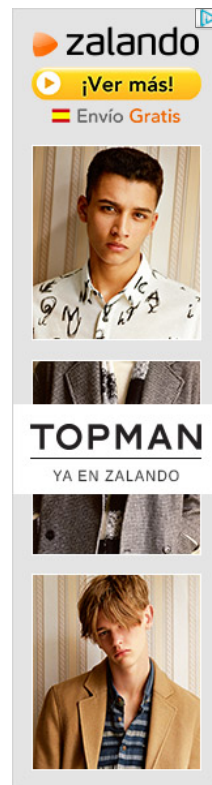


Preview comment

Post comment

- ▣ **30 Years Left To Reach The Limit: CO2 Emissions Will Reach New Record High In 2014**
- ▣ **Quantum Teleportation 25 Kilometers Away**
- ▣ **Global Carbon Report: Emissions Will Hit New Heights In 2014**
- ▣ **Experts Issue Plea For Better Research And Education For Advanced Breast Cancer**
- ▣ **Evolution Of Responses To (un)fairness**

Create Your Own Releases:



We allow third-party companies to serve ads and/or collect anonymous information. These companies may use non-personally identifiable information (browser type, time and date) in order to provide advertisements about goods and services likely to be of greater interest to you. These companies typically use a cookie or third party web beacon to collect this information. To learn more about this behavioral advertising practice or to opt-out of this type of advertising, please visit [networkadvertising.org](http://networkadvertising.org).