

La PhotoBioModulation
Perspectives attendues
dans la prise en charge
des
dysplasies du col par PDT

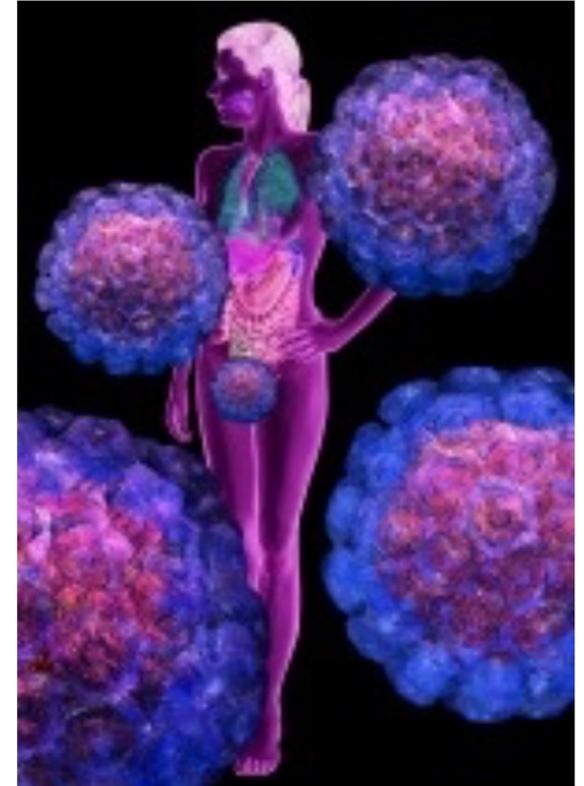
Henri CLAVÉ
Nice



Polyclinique
Saint George
Groupe Kantys

Human Papilloma Virus

- Human Papilloma Virus (HPV) is a highly prevalent sexually transmitted disease
- Affects 80% women of all women during their lifetime
 - 300 million woman infected worldwide
 - 11.4% prevalence in the general population
 - Highest incidence in ages 18-35 years
- Well established cause of Cervical Intraepithelial Neoplasia (CIN) and cervical cancer
- Highly oncogenic subtypes 16 and 18 causal factor in
 - ~70% all cervical cancers
 - ~50% all high grade lesions
 - ~25% all low grade lesions



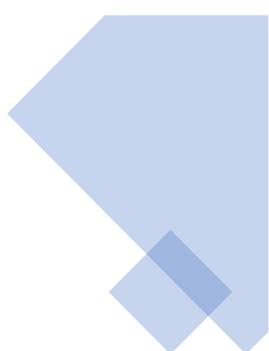
Pregnancy outcome in women before and after cervical conisation: population based cohort study

Susanne Albrechtsen, obstetrician,^{1,2} Svein Rasmussen, professor,^{2,3} Steinar Thoresen, professor,⁴ Lorentz M Irgens, professor,² Ole Erik Iversen, professor³



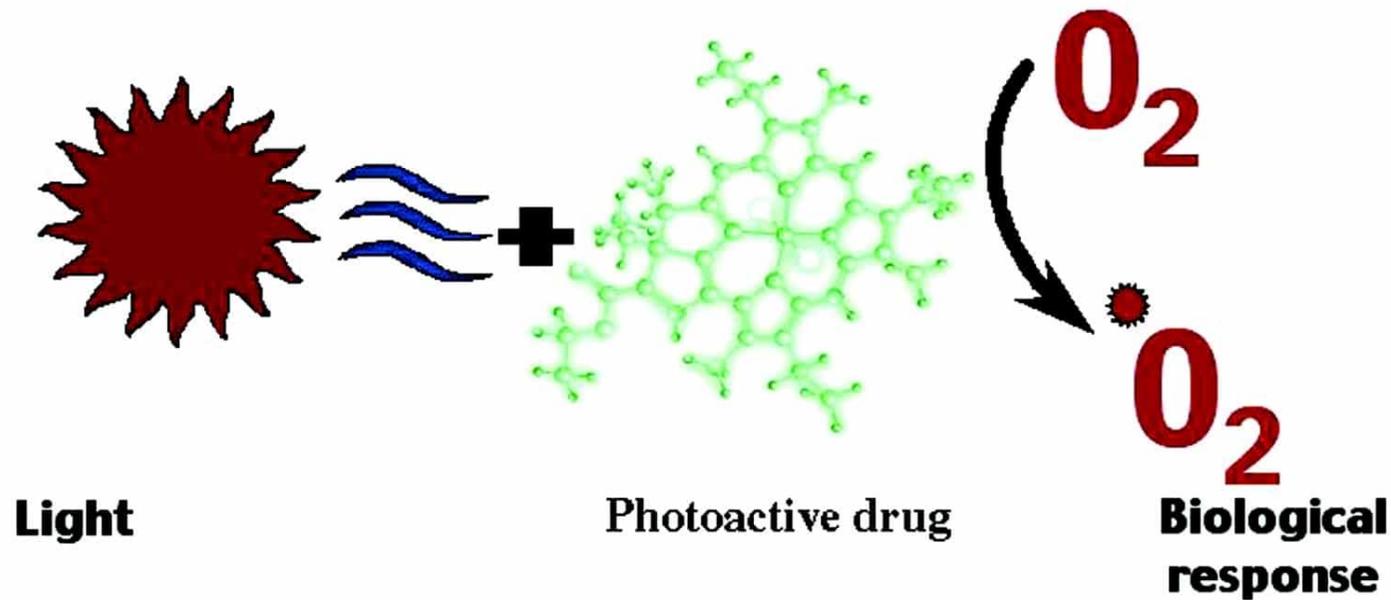
- Increased risk of preterm delivery
- High impact on health care costs
- Relative risk of late miscarriages 4.0

Fig 1 | Births before and after cervical conisation or with no cervical conisation by gestational age, Norway 1967-2003

- 
- HPV related disease of cervix affects majority of women and risk of development of cervical cancer if not managed appropriately
 - 10 million women globally with high grade lesions
 - 30 million women globally with low grade lesions
 - Current screening and surveillance of low grade lesions (CIN1) complicated with high risk of women lost to follow up and possible disease progression
 - Need for new treatments in women with associated high risk HPV related infections
 - Need for new treatment options of high grade lesions (CIN 2)

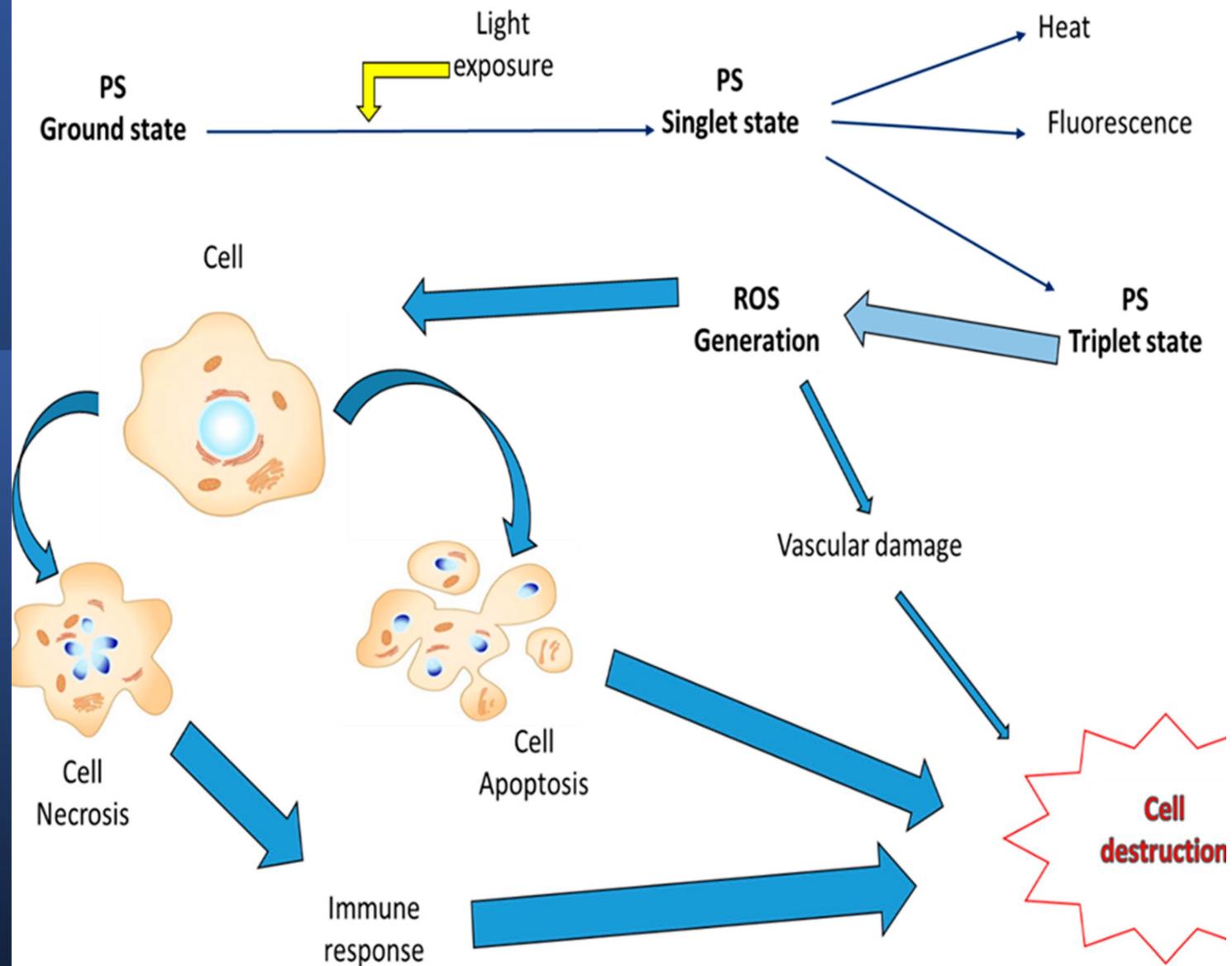
Need for non-invasive, safe alternatives to ensure rapid clearance of HPV and lesions

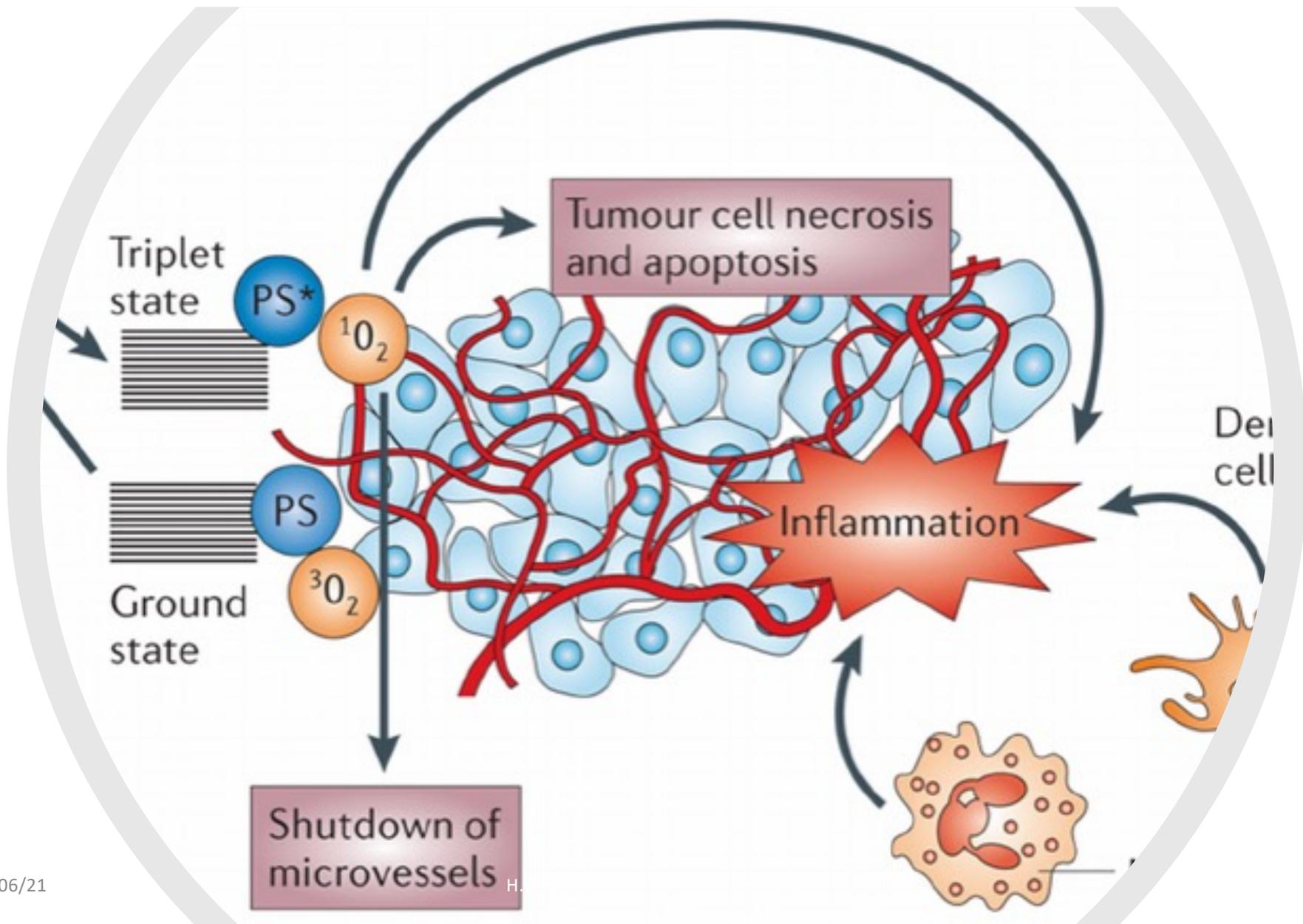
Mechanism of Photodynamic Therapy



- **Reactive oxygen species / free radicals**
- **PDT initiates cellular apoptosis**

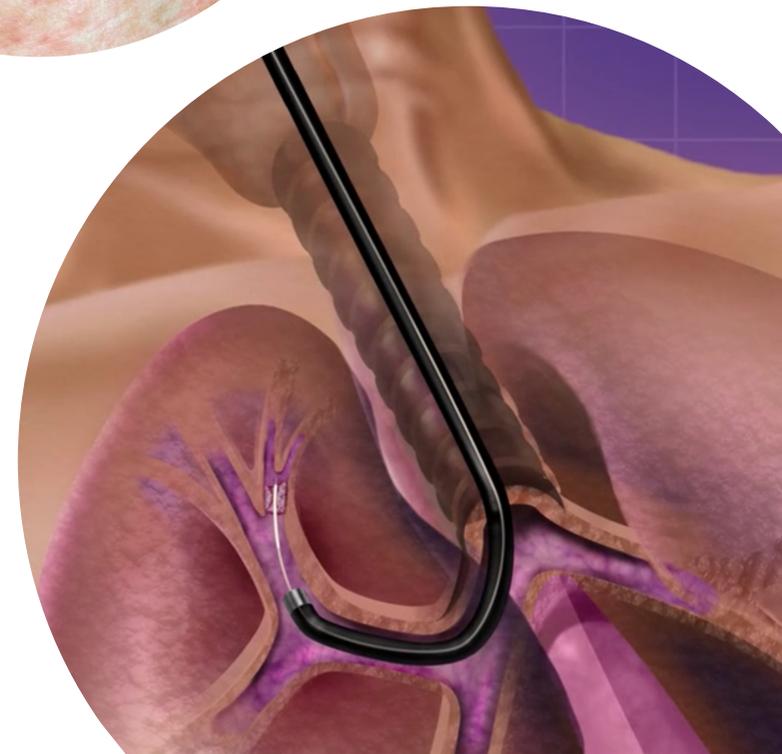
Mécanismes de la PDT (2)





Exemples d'utilisation de la PDT

- Dermatologie
 - Keratose actinique
 - Carcinome baso-cellulaire
 - Carcinome intra-cellulaire
- Pneumologie
 - Destruction de T. obstructive
- ORL
- Vulve :





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H.Clavé.

Gynazur

PDT et Pathologies gynécologiques : Le Col

Diagnostic and Therapeutic Endoscopy, Vol. 5, pp. 183–190
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Application of PDT for Uterine Cervical Cancer

T. MUROYA*, K. KAWASAKI, Y. SUEHIRO, T. KUNUGI, K. Umayahara, T. AKIYA,
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PDT et Pathologies gynécologiques : Le col utérin

Photodiagnosis and Photodynamic Therapy (2008) 5, 256–259



available at www.sciencedirect.com



journal homepage: www.elsevier.com/locate/pdpdt



Photodynamic therapy of virus-associated precancer and early stages cancer of cervix uteri

O.I. Trushina PhD*, E.G. Novikova, V.V. Sokolov, E.V. Filonenko,
V.I. Chissov, G.N. Vorozhtsov

P.A. Herten, Moscow Research Oncological Institute, Russian Federation

PDT et Pathologies
gynécologiques :

Le col utérin

Efficacy and safety of photodynamic therapy for cervical intraepithelial neoplasia and human papilloma virus infection

A systematic review and meta-analysis of randomized clinical trials

Zhang, Wenjia MD^a; Zhang, Aijia MM^b; Sun, Wende BD^c; Yue, Ying MD^{a,*}; Li, Hong MS^{d,*}

Section Editor(s): Bhatt., Girish Chandra

Medicine: May 2018 - Volume 97 - Issue 21 - p e10864

doi: 10.1097/MD.00000000000010864

Research Article: Systematic Review and Meta-Analysis

4 RCT		PDT	Placebo	Odds Ratio
CRR Rémission complete	CIN	64%	36%	2,51
CRR Rémission complète	HPV+ Clearance	62%	30%	3,8
AER Effets indésirables		75%	17%	13,32
Méta-analyse de 4 essais Randomisés : dysplasie du col uterin ou HPV+				

In Zhang W and al. Medicine Vol.97 issue 21- p e10864
 Published by Wolters Kluwer Health 2019

PDT et Pathologies gynécologiques:

Le Col

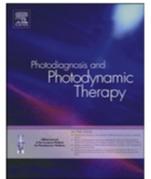
Photodiagnosis and Photodynamic Therapy 24 (2018) 52–57



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journal homepage: www.elsevier.com/locate/pdpdt

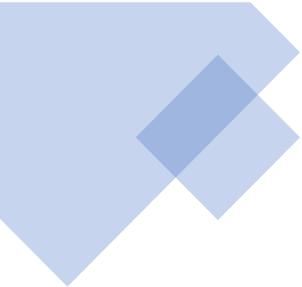


Clinical application of photodynamic diagnosis and photodynamic therapy for gynecologic malignant diseases: A review

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> [Oncotarget](#). 2019 Jul 9;10(43):4380-4396. doi: 10.18632/oncotarget.27029.

Photodynamic therapy of cervical cancer by eradication of cervical cancer cells and cervical cancer stem cells

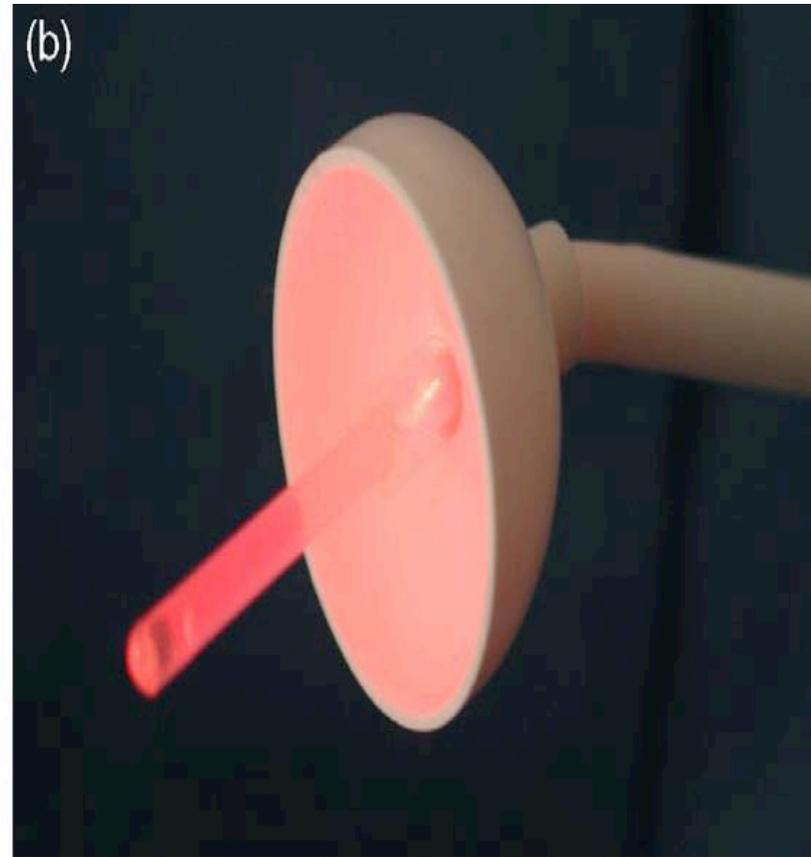
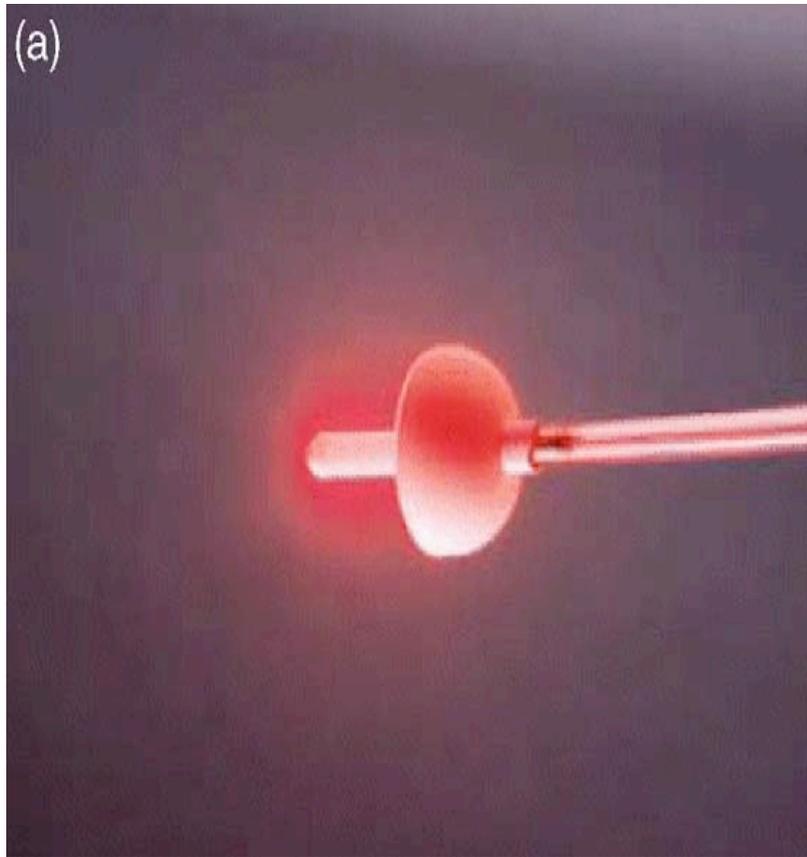
[Elvin Peter Chizenga](#)¹, [Rahul Chandran](#)¹, [Heidi Abrahamse](#)¹

Affiliations + expand

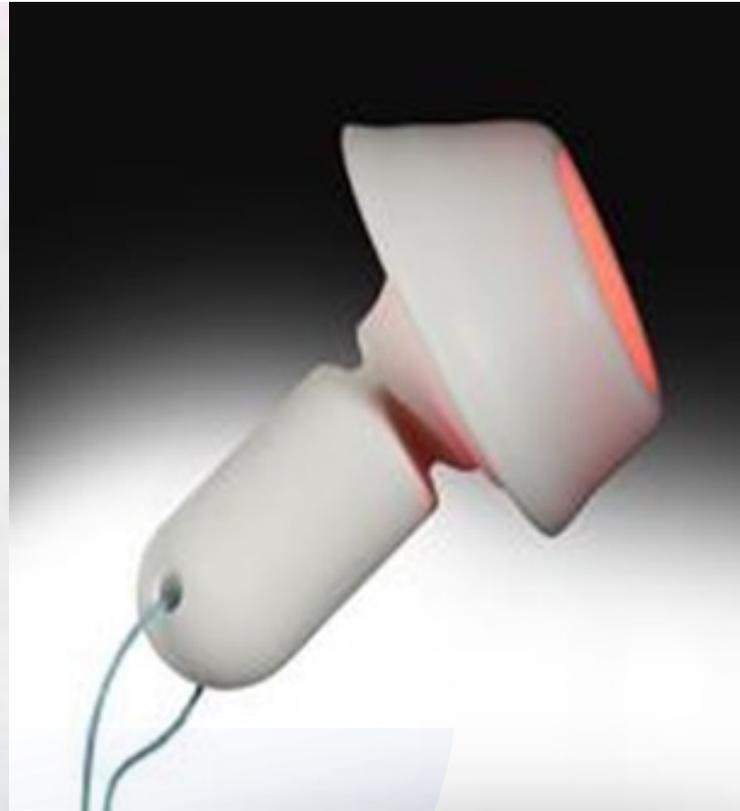
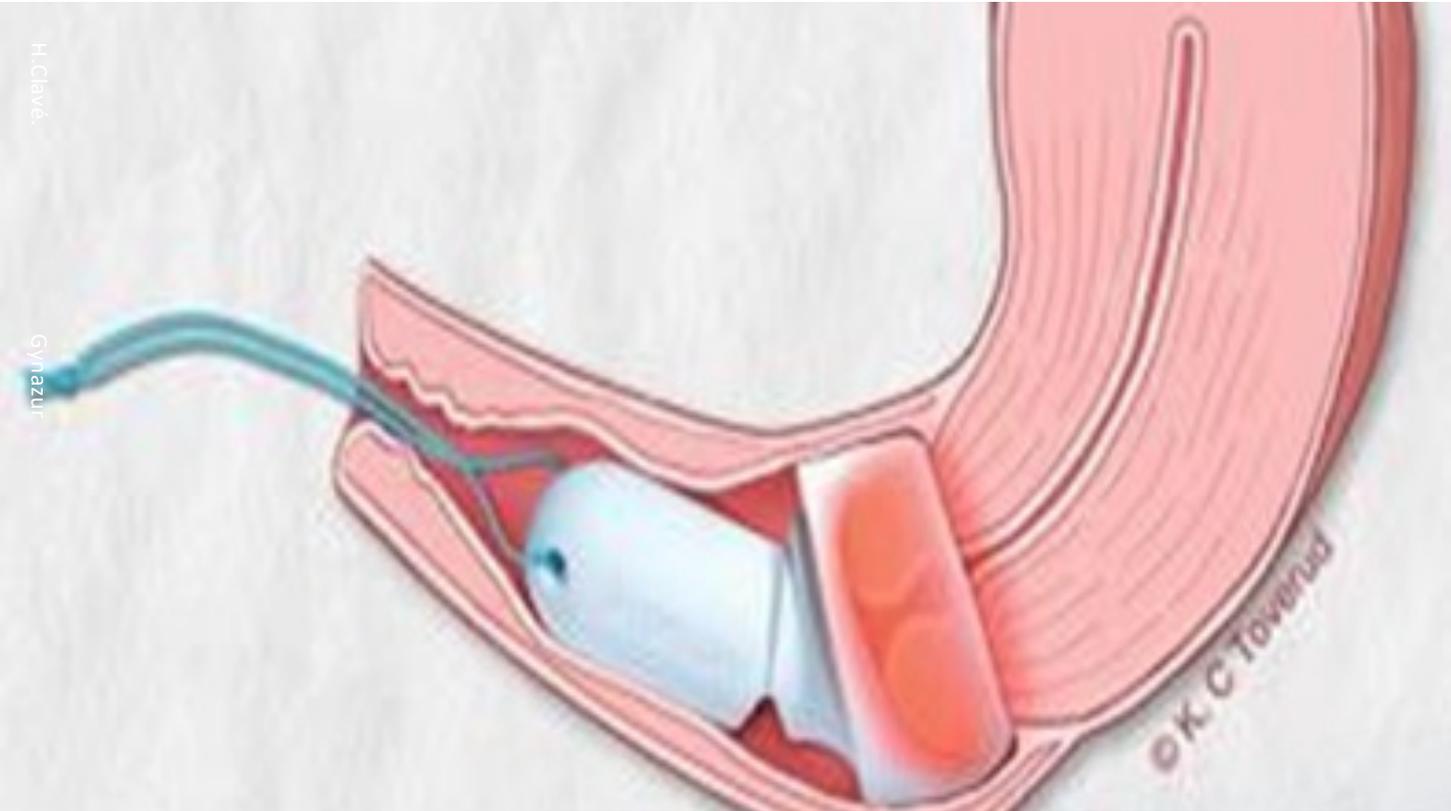
PMID: 31320992 PMCID: [PMC6633885](#) DOI: [10.18632/oncotarget.27029](#)



The pre-photodynamic therapy cervicographic figures of the cervix in a 32-year-old married woman (para 2-0-0-2) with carcinoma in situ histologic lesion showed broad acetowhitening and mosaic lesion with punctuation at 8 to 1 o'clock direction (A). The post-photodynamic therapy cervicographic figures cervicography at 16 months after photodynamic therapy shows nearly normal appearance



- Appareil de lumière exo- et endocervicale permettant la PDT des dysplasies cervicales



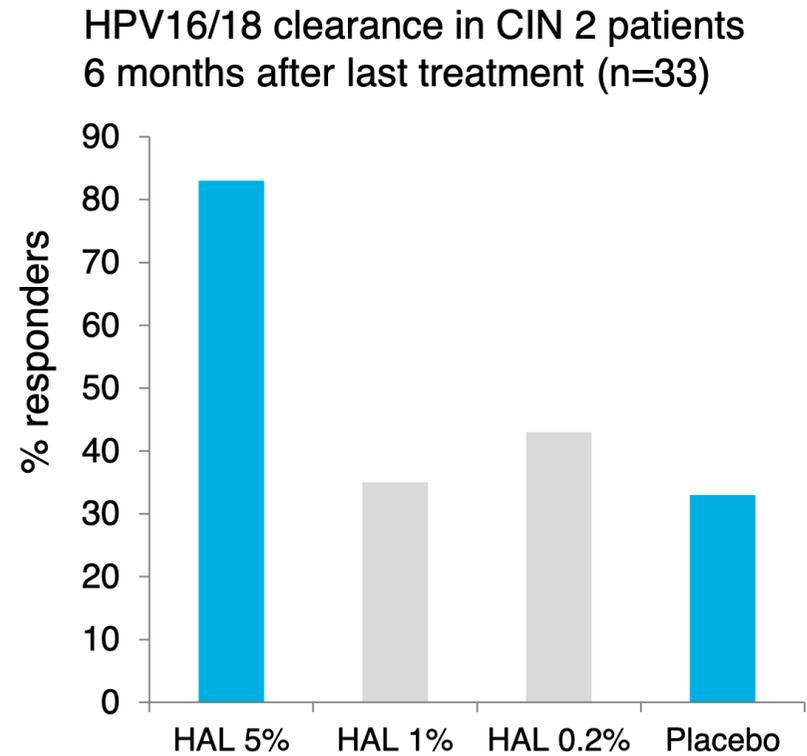
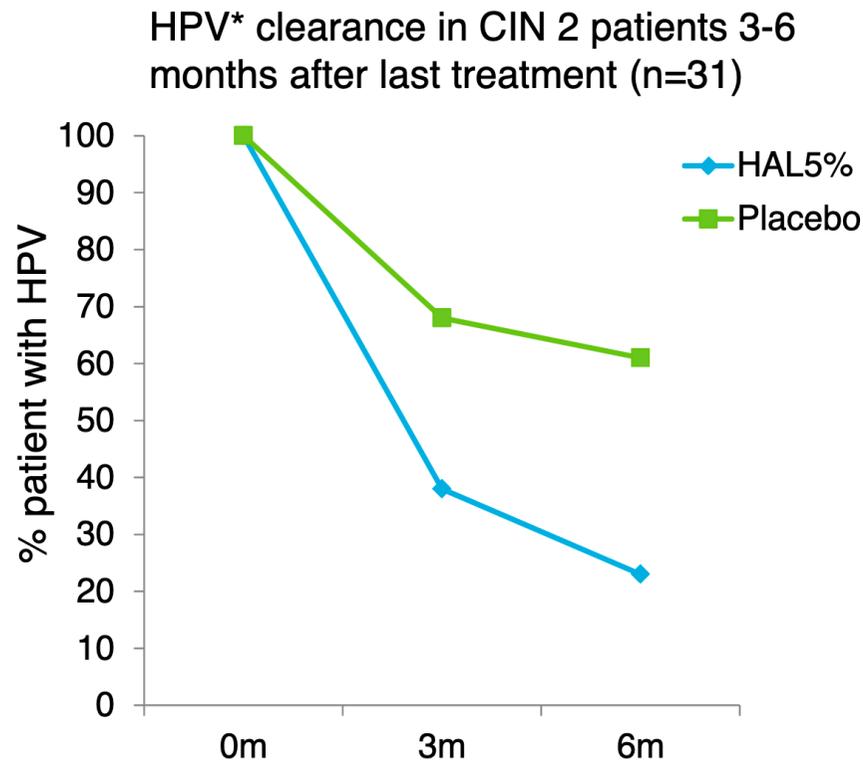
Dispositif Cevira (Photocure/Asieres)

Cevira Fully Integrated Drug-Device

- Cevira ointment containing HAL applied into the device and placed on the cervix by the gynecologist
- Automatic photoactivation 5 hours after drug application
- Integrated light source delivers $100\text{J}/\text{cm}^2$ of red (629nm) light photoactivation lasting 4.6 hours
- Patient removes device after completion of treatment

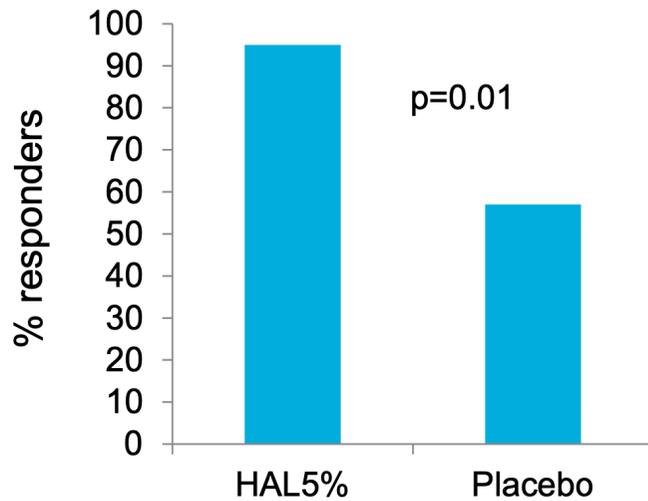


Cevira Demonstrated Sustained Clearance of HPV including HPV 16/18 at 6 months

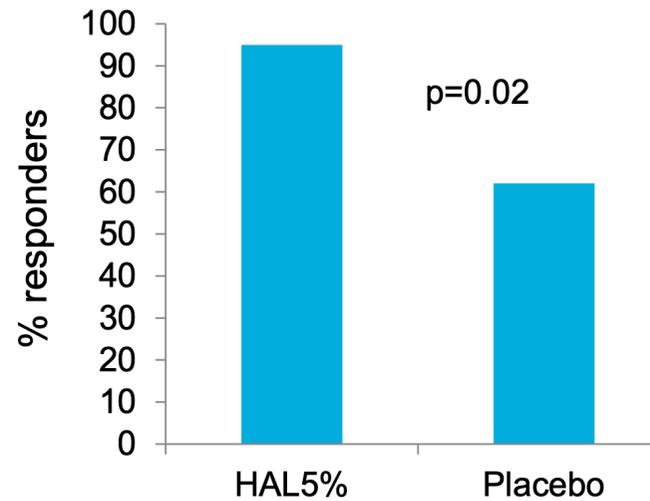


Cevira Demonstrated Significant and Sustained Efficacy in CIN2 Patients after 6 months

CIN2 overall response 3 months after last treatment (n=40)



CIN2 overall response 6 months after last treatment (n=40)





Conclusion

- PDT et Dysplasie du col

- Procédé qui devrait trouver sa place à la frontière de la chirurgie prochainement
- Nécessité d'études cliniques non criticables
- Nécessité de protocoles plus précis
- Champ de développement immense dans d'autres pathologies gynécologiques .



Merci pour votre attention

Henri CLAVÉ

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