

Kronik Hepatit B hastalarında Tiyol-disülfid homeostazının değerlendirilmesi

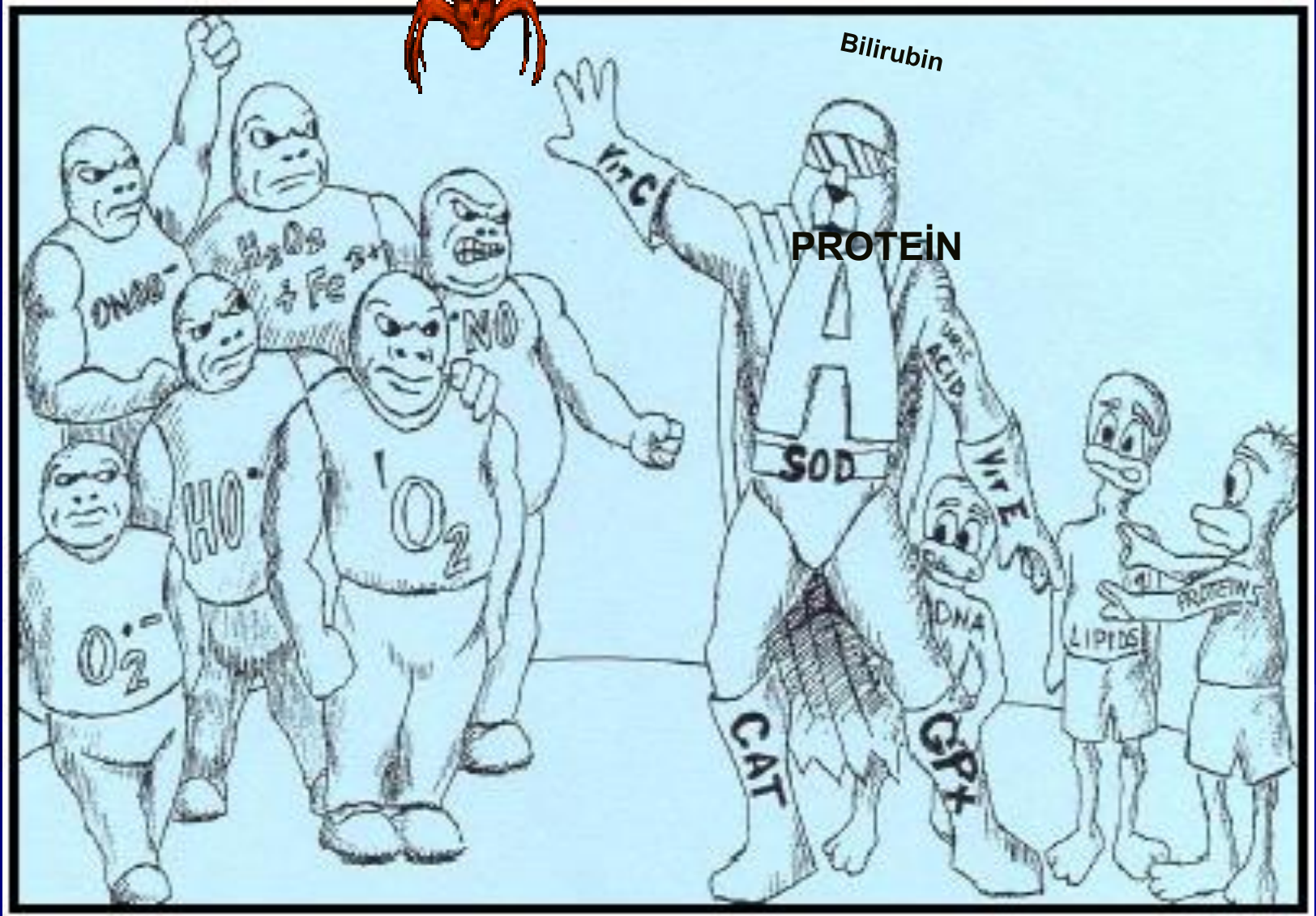
Fikriye Milletli Sezgin¹, Rukiye Nar², Lokman Hızmalı³

¹Ahi Evran Üniversitesi Tıp Fakültesi Tıbbi Mikrobiyoloji AD. Kırşehir

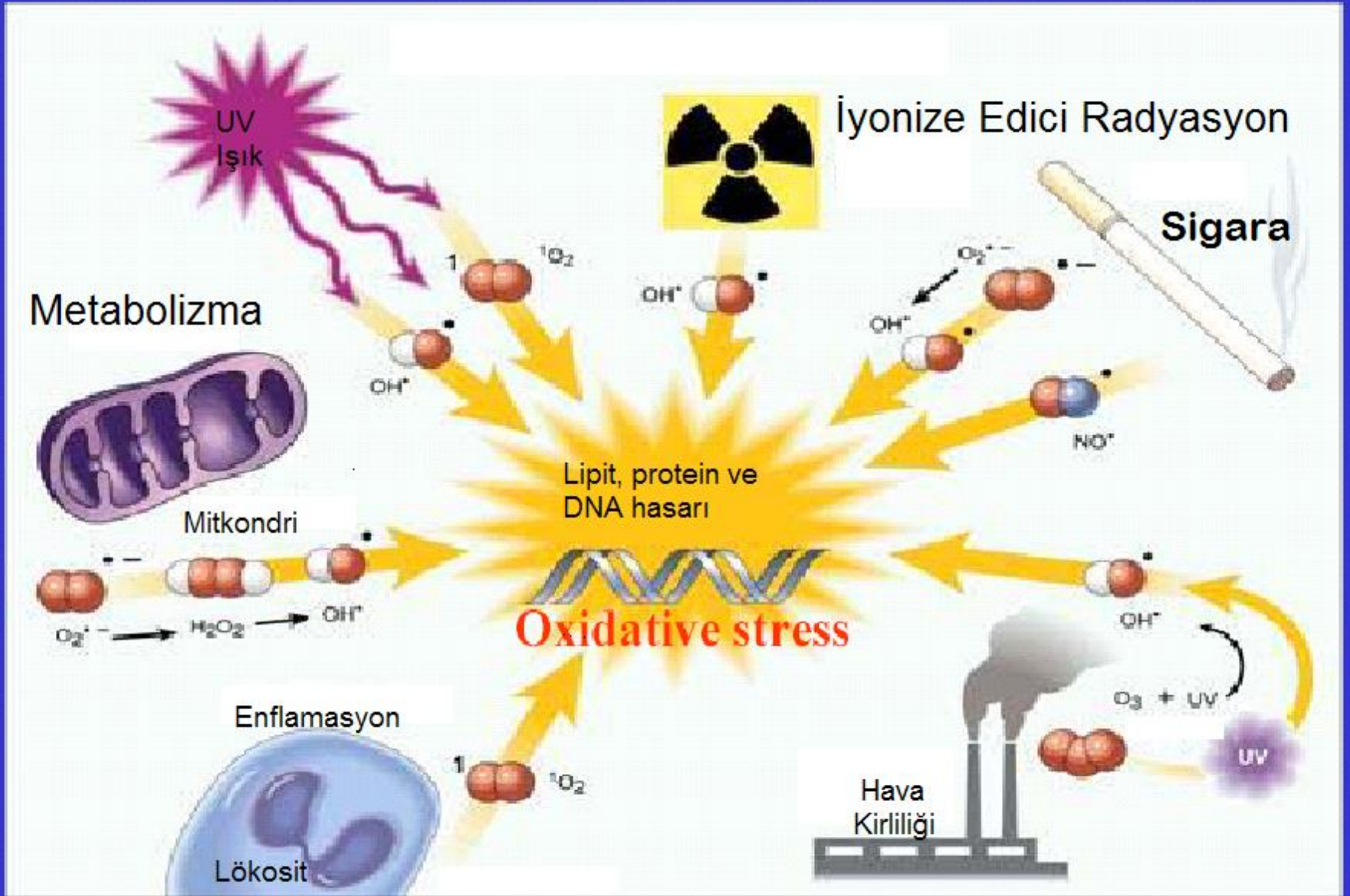
²Ahi Evran Üniversitesi Tıp Fakültesi Tıbbi Biyokimya AD. Kırşehir

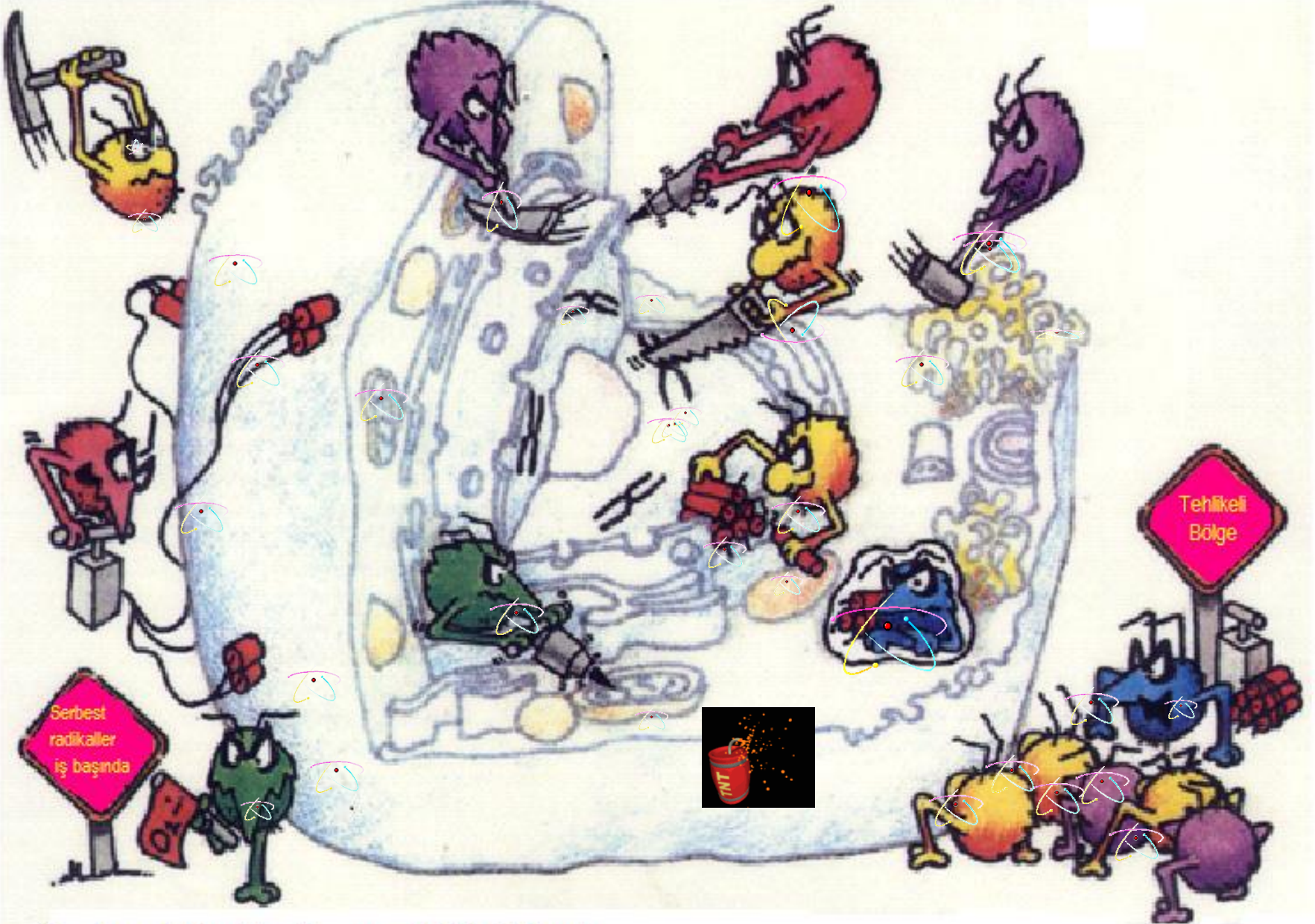
³Ahi Evran Üniversitesi Tıp Fakültesi Enfeksiyon Hastalıkları Ve Klinik Mikrobiyoloji AD. Kırşehir

Oksidanlar ve Antioksidanlar



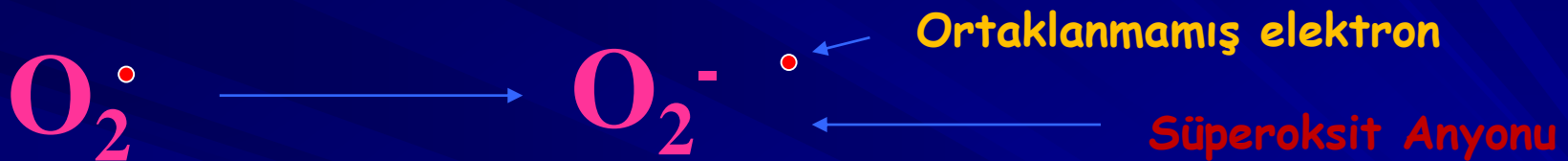
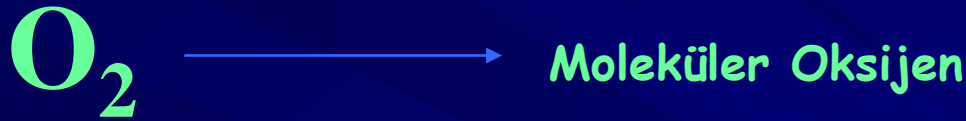
Serbest Radikal Kaynakları





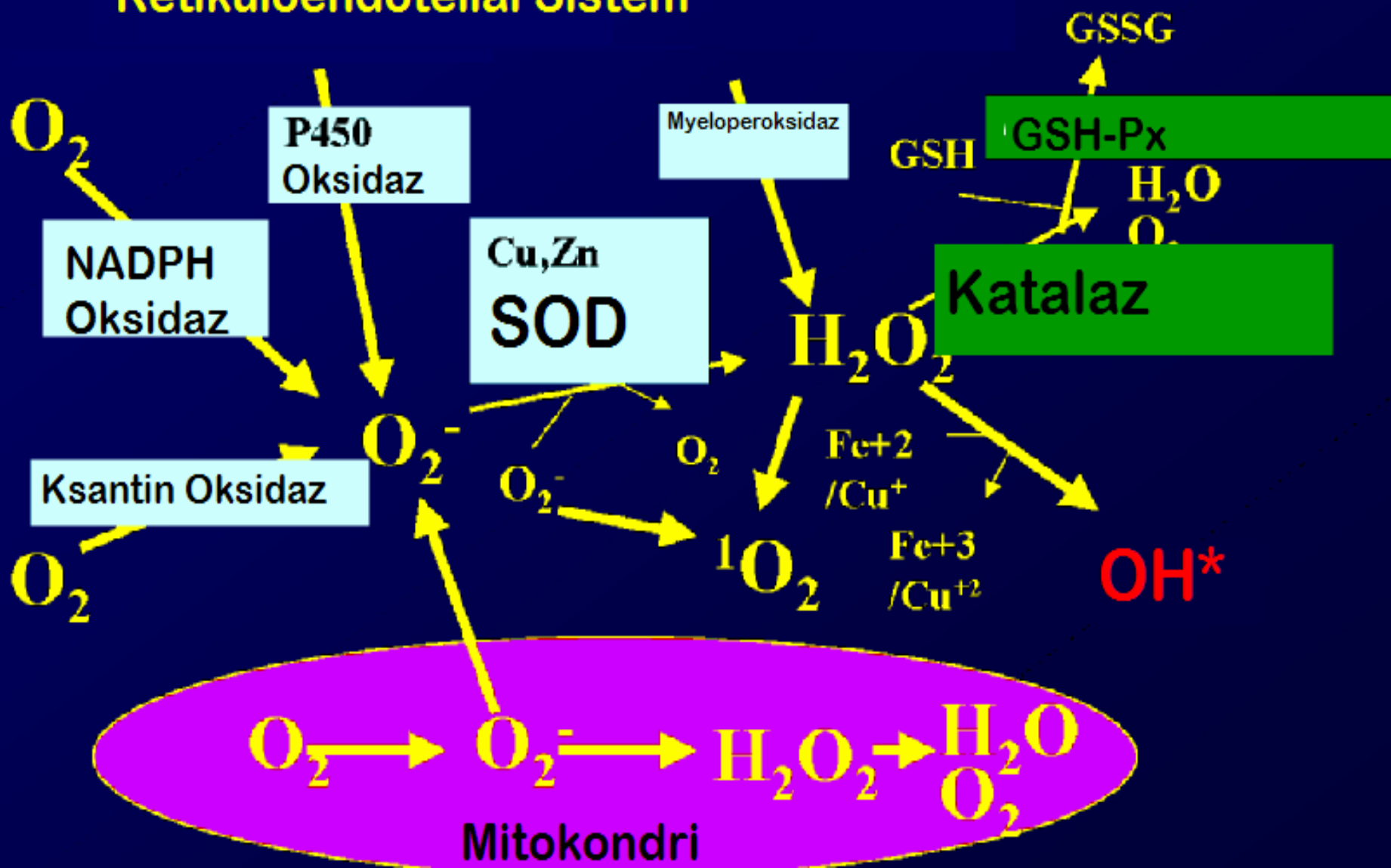
Serbest Radikaller ve Müttefikleri

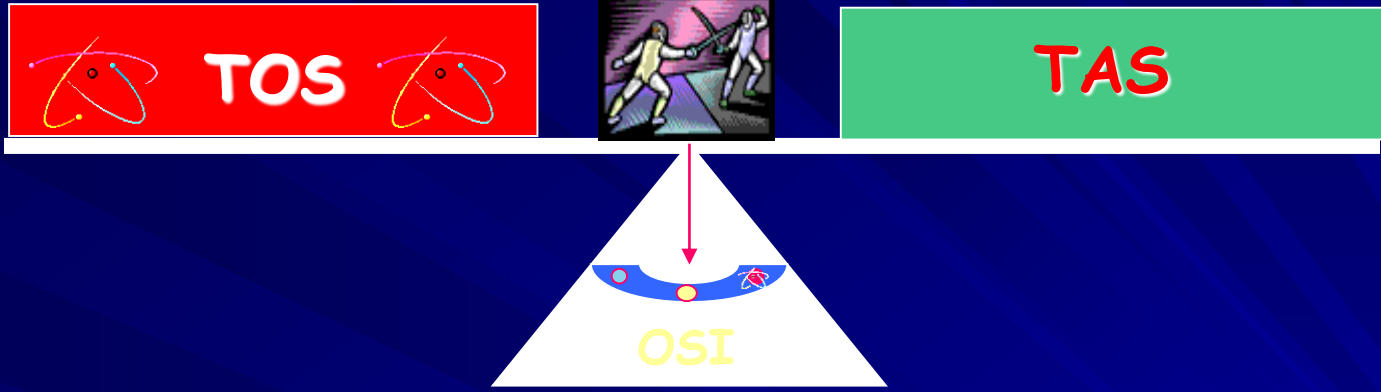
Reaktif Oksijen Türleri



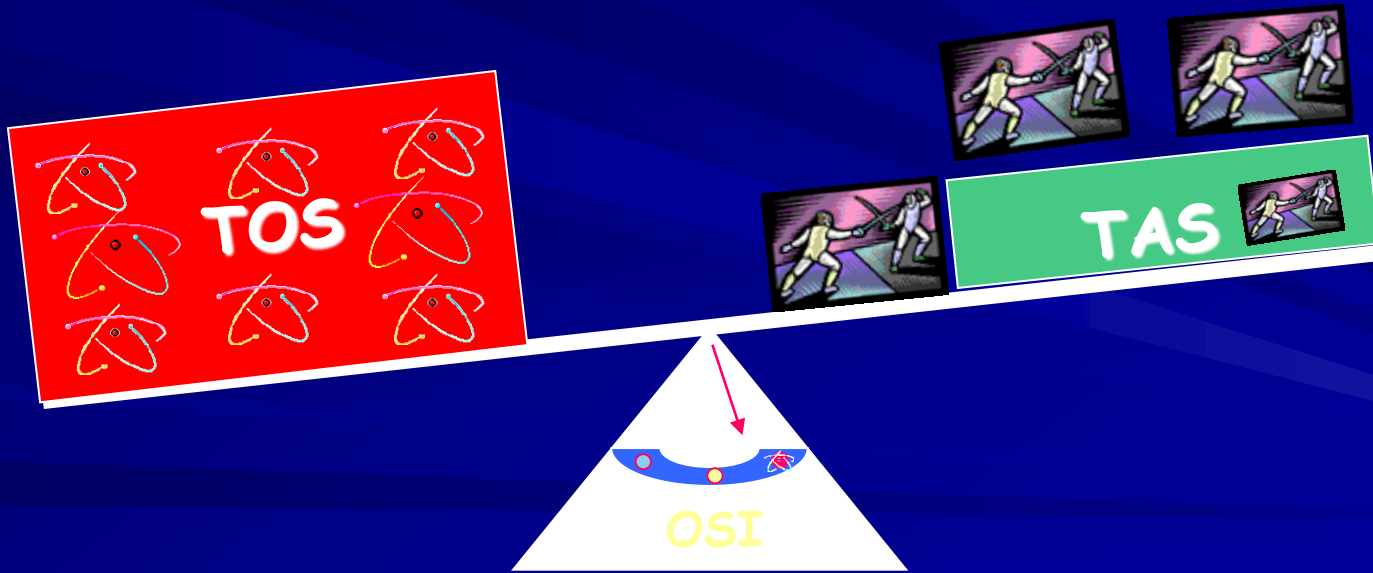
Reaktif Oksijen Türlerinin Endojen Üretim Yolları

Retiküloendotelial Sistem





Normal oksidan-antioksidan düzen homeostazisi



Oksidatif Stres ve Oksidatif Hasar



DNA



genetik
mutasyon

LIPIT



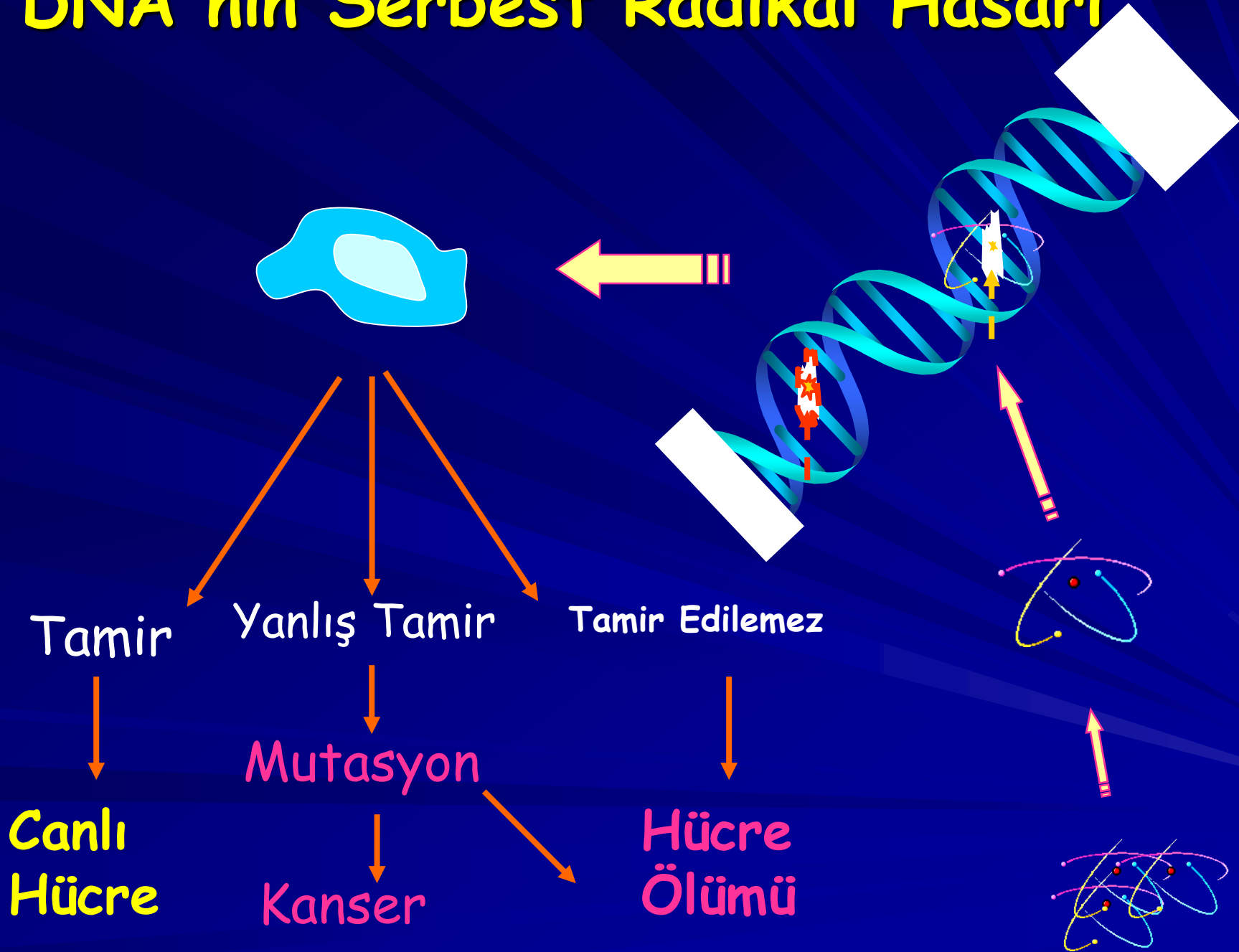
membran
fonksiyon kaybı

PROTEIN



enzim
inaktivasyonu

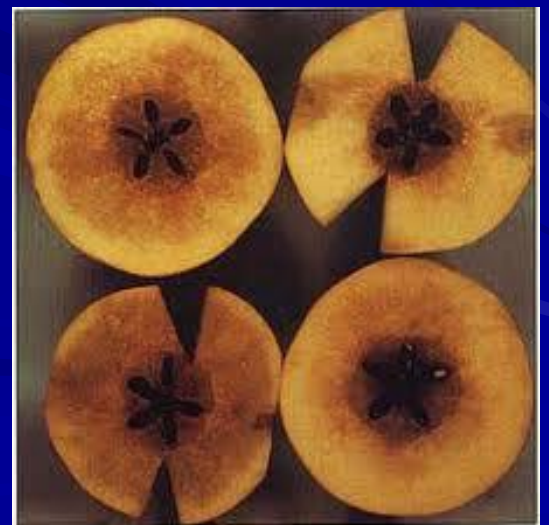
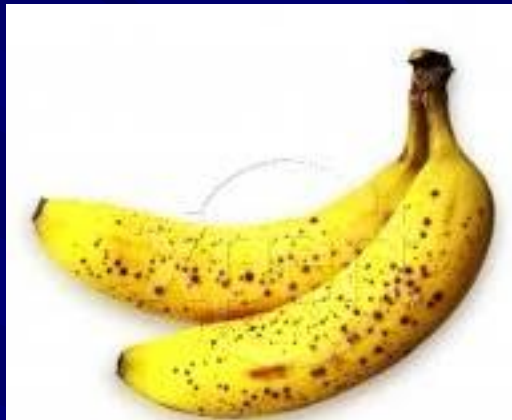
DNA nin Serbest Radikal Hasarı



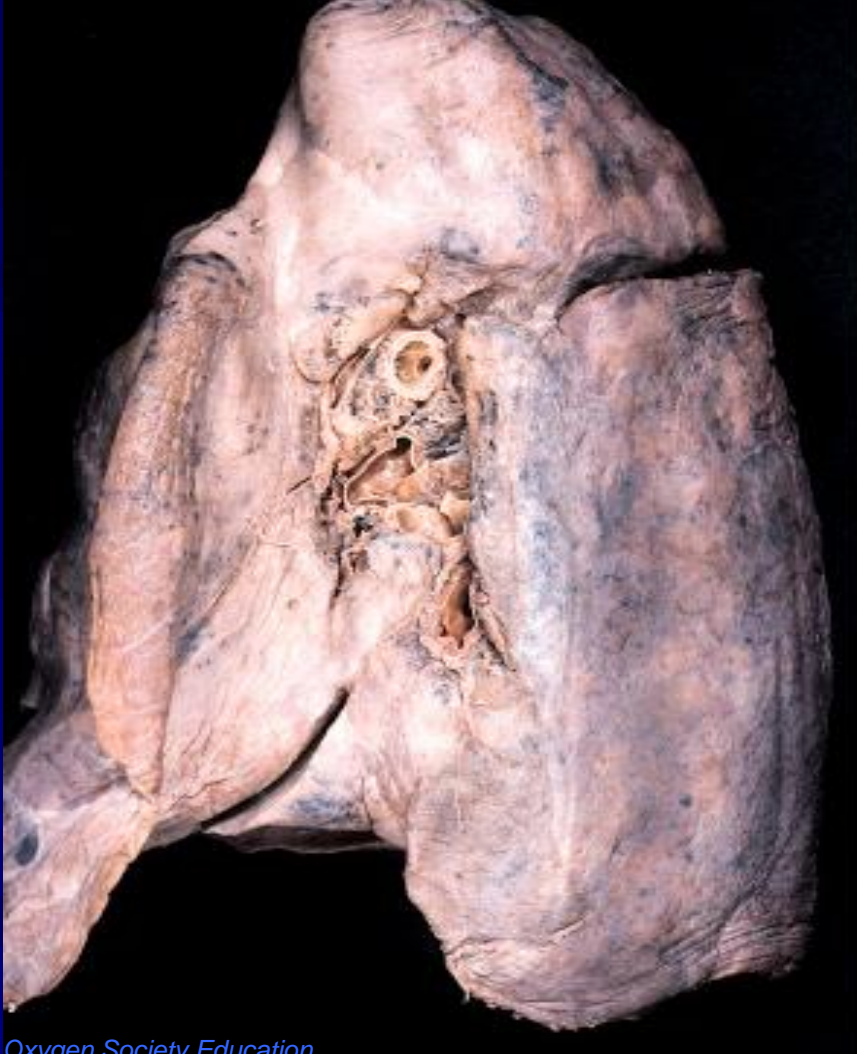




A freshly-cut apple will turn brown when it oxidizes.



Sağlıklı Akciğer / Sigara İçen ve Kanserli Akciğer



Oxidative Stress Index (OSI)

TOS

TAS

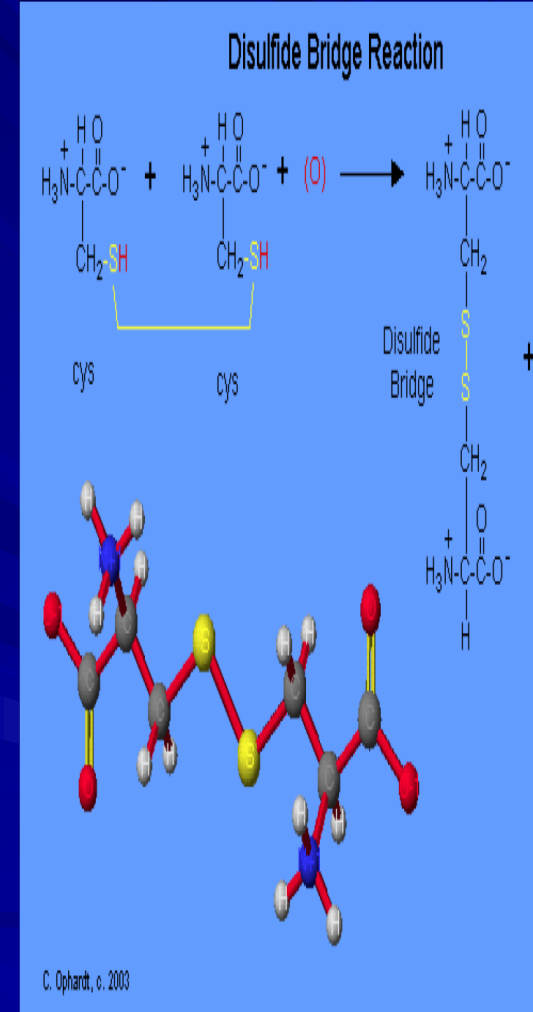


Oxidative stress index (OSI) is a new indicator parameter of oxidative stress level and formulation is figured below.

$$\text{OSI} = \frac{(\text{TOS}, \mu\text{mol H}_2\text{C}_2 \text{ equivalent/L})}{(\text{TAS}, \mu\text{mol Trolox equivalent/L})} \times 100$$

Tiyol-Disülfid Dengesi

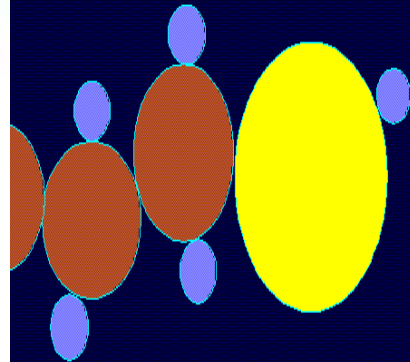
- **Albumin, glutatyon, homosistein** ve **tiyoredoksin** gibi moleküller, fonksiyonel-**SH** grupları olan tiyollerden oluşur.
- Tiyoller ortamda bulunan **oksidan** moleküller tarafından oksitlenerek tersinir **disülfid bağ (-S-S-)** yapılarına dönüşürler.
- Oluşan disülfid bağ yapıları tekrar tiyol gruplarına redüklenebilir ve böylece tiyol disülfid dengesi sürdürülür.
- Tiyol-disülfid dengesi, antioksidan savunma, inflamasyon, immün yanıt, apoptoz ve hücre içi sinyal mekanizmalarında kritik rollere sahiptir.



Oksidasyon

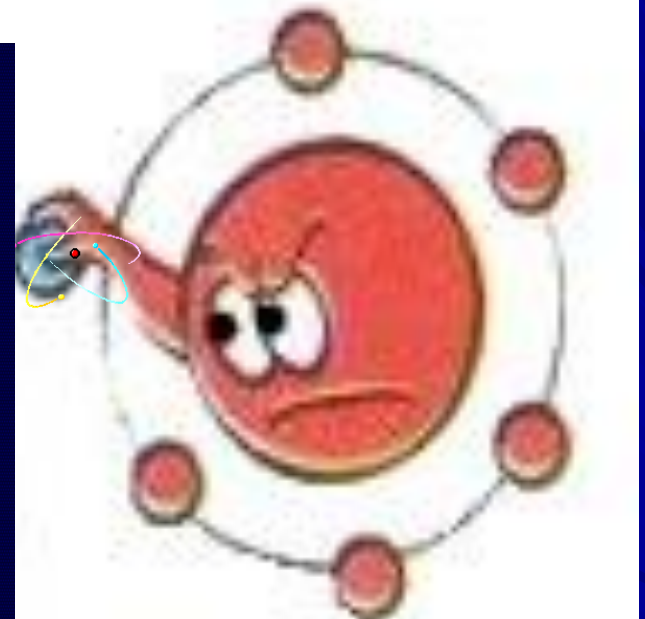
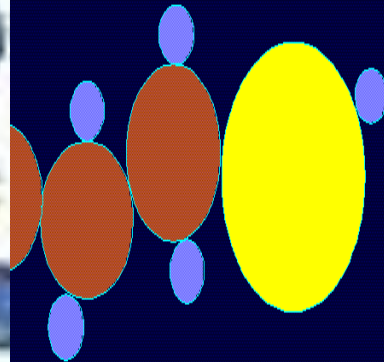
Thiol:

RSH



Thiol:

RSH

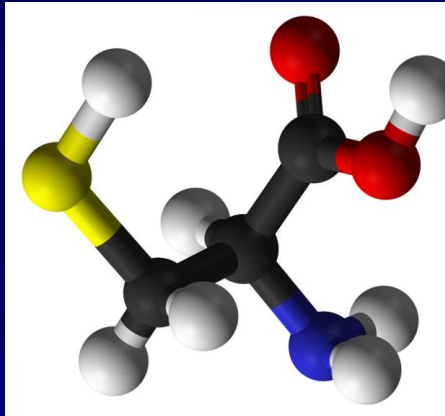


Disulfide:

RSSR

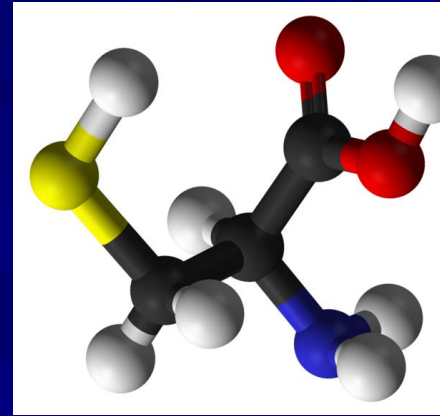


Tiyol ve Disülfidlerin Oksidasyon ve Redüksiyonları

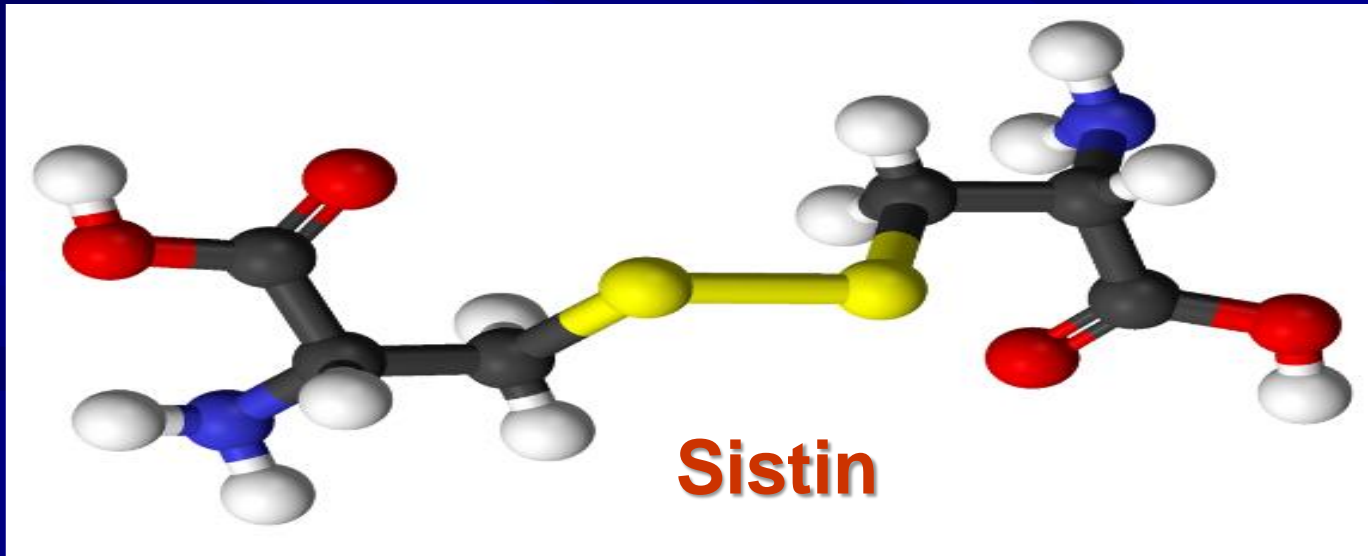


Sistein

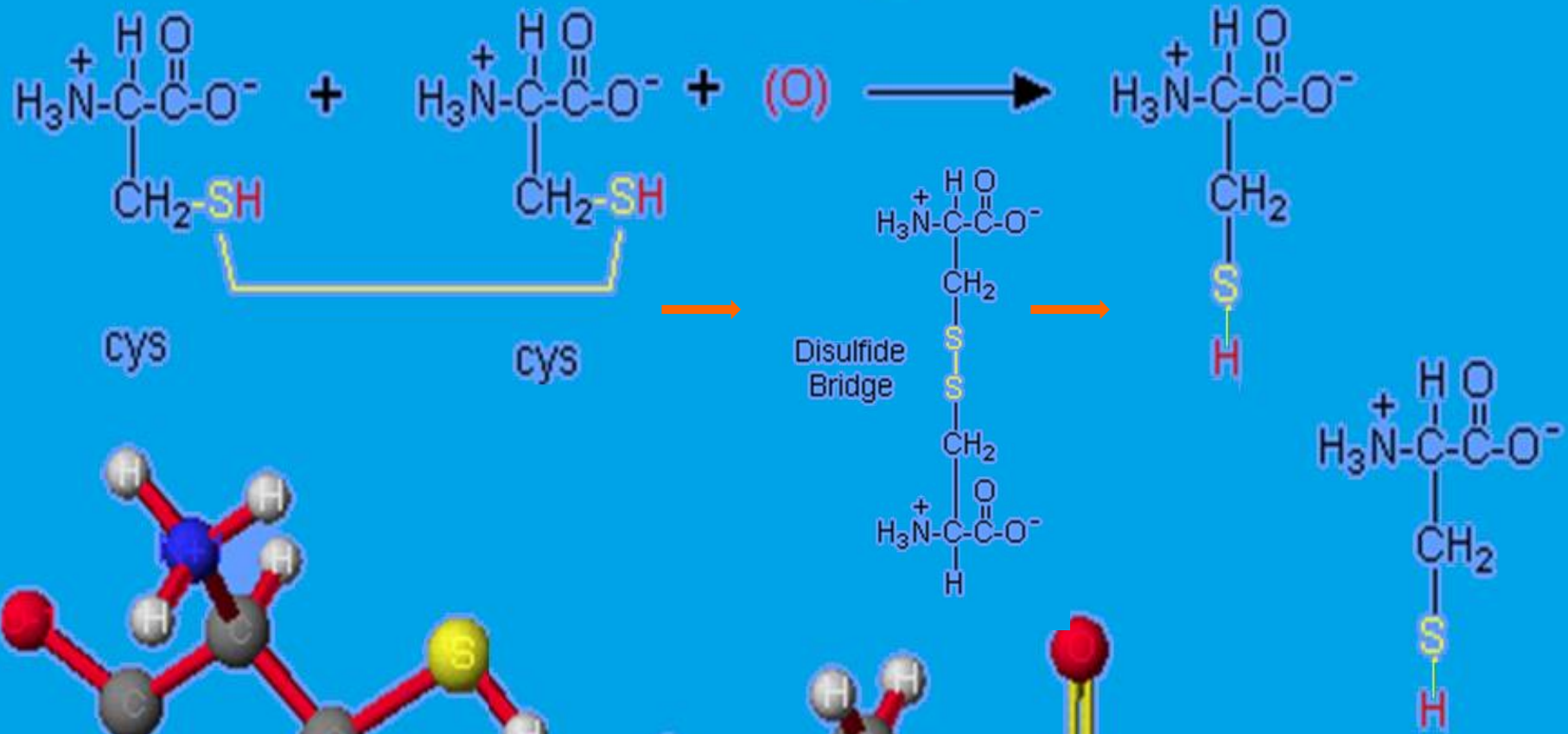
+



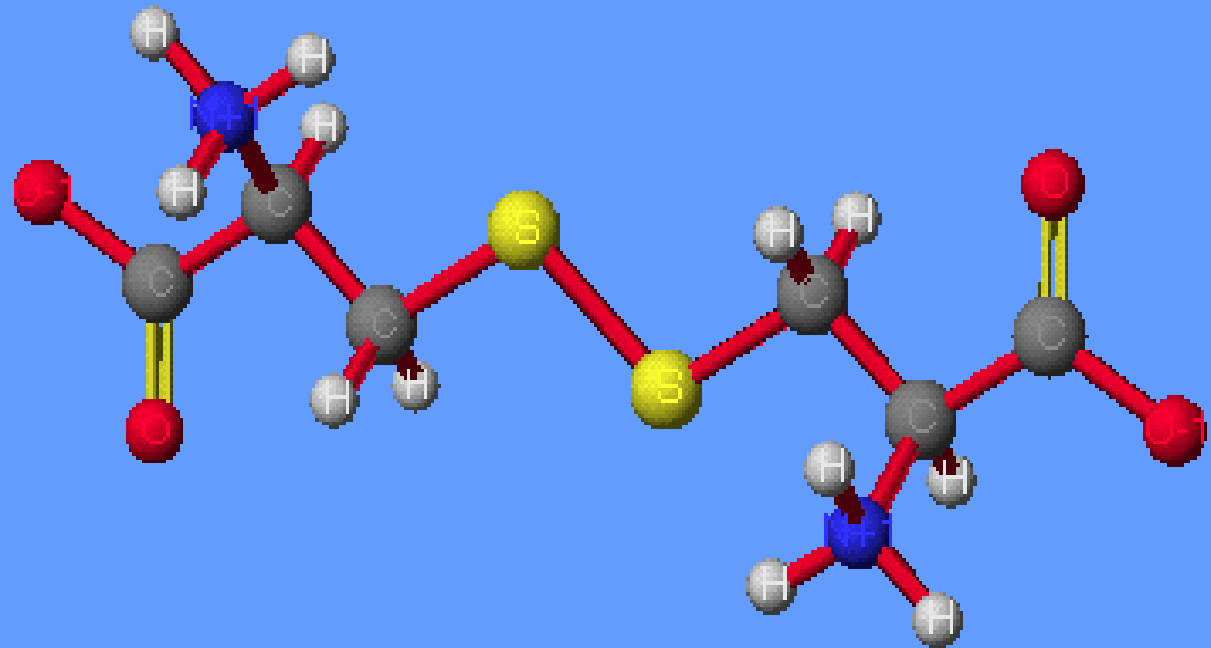
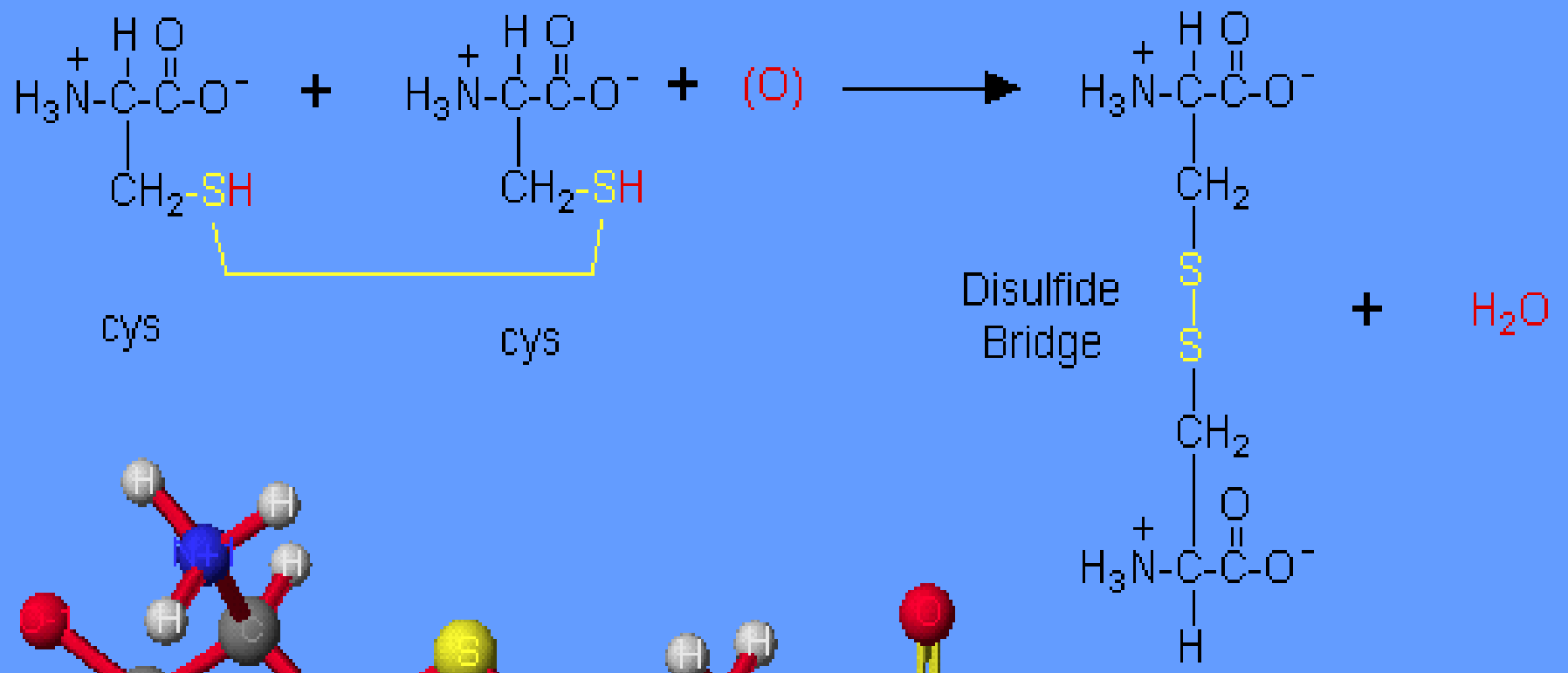
Sistein

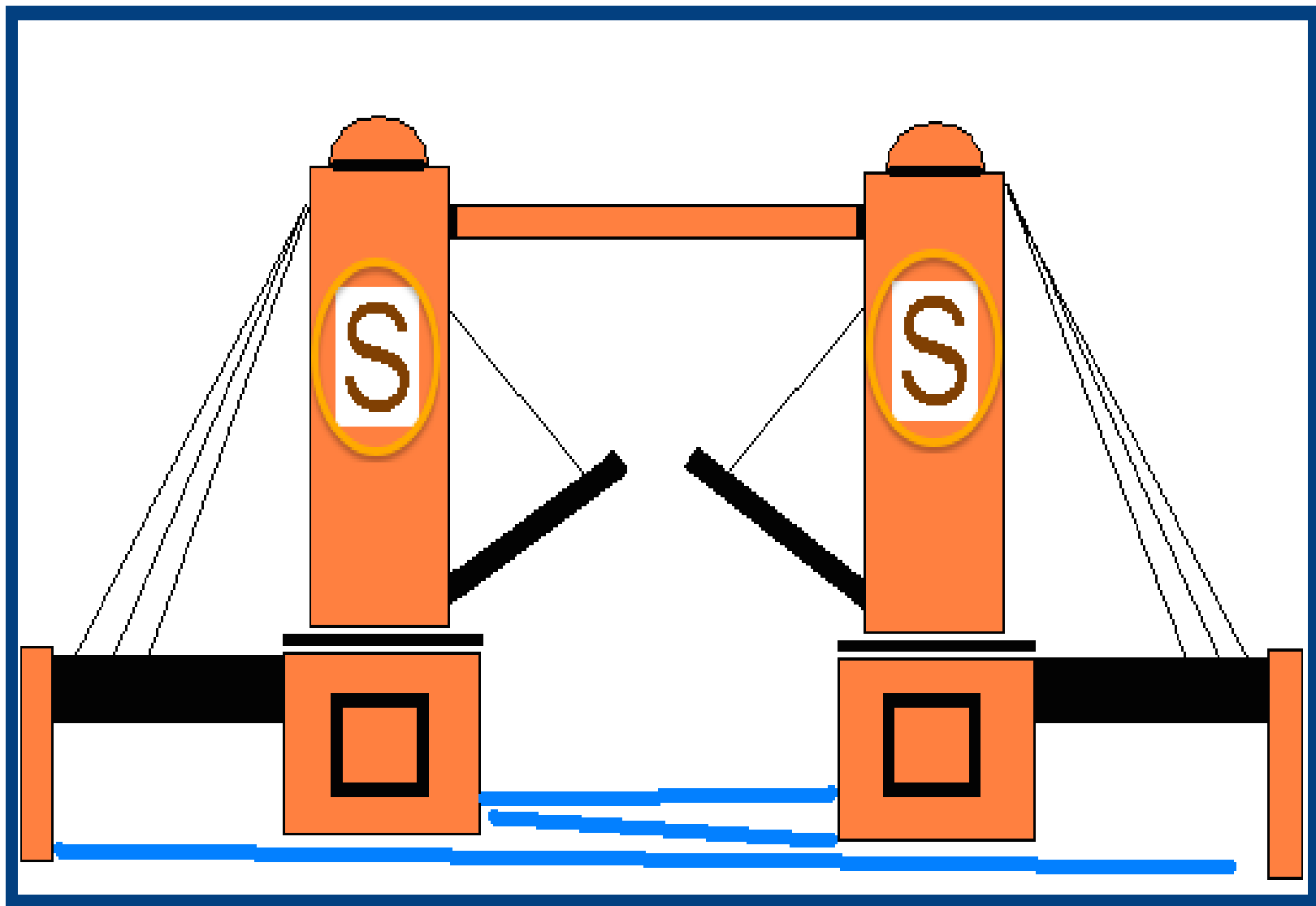


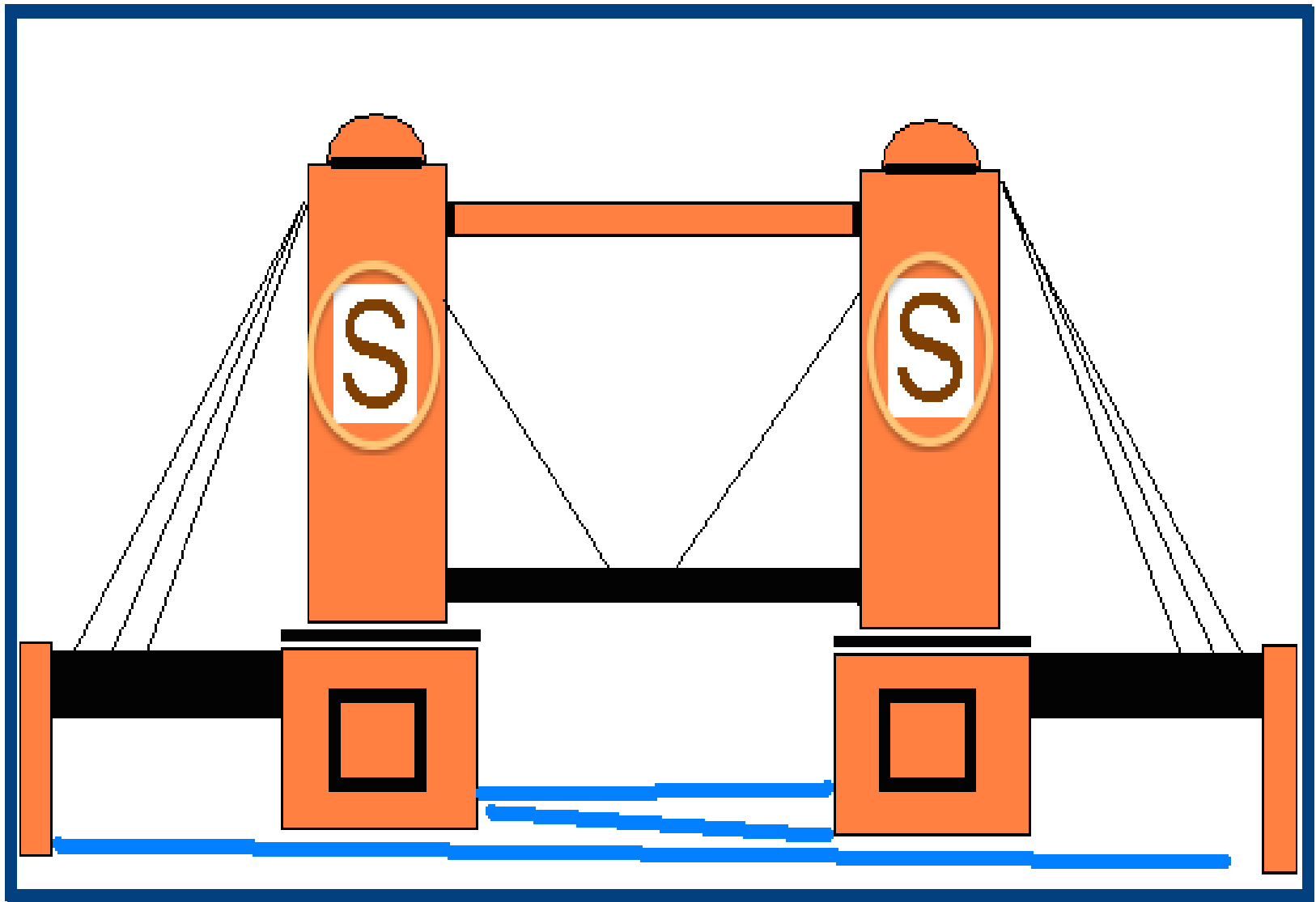
Disulfide Bridge Reaction



Disulfide Bridge Reaction







Tiyol disülfid dengesi

TIYOL -SH



DISÜLFİD -S-S-



Contents lists available at [ScienceDirect](#)

Psychiatry Research

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



Thiol/disulfide homeostasis in untreated schizophrenia patients



Canan Topcuoglu^{a,*}, Abdurrahim Bakirhan^b, Fatma Meric Yilmaz^c, Salim Neselioglu^c,
Ozcan Erel^c, Safak Yalcin Sahiner^b

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ARTICLE INFO

ABSTRACT

Keywords:

Background: The aim of the study was to investigate dynamic thiol/disulfide (SH/SS) homeostasis in untreated

Thiol-Disulfide Homeostasis in Patients with Panic Disorder

Burak Kulaksizoglu¹, Sibel Kulaksizoglu^{2*}

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<http://dx.doi.org/10.4236/ijcm.2017.81004>

Received: December 20, 2016

Accepted: January 19, 2017

Abstract

Objective: To determine serum thiol/disulfide homeostasis in panic disorder (PD). **Methods:** Serum native thiol, total thiol, and disulfide levels were measured in the patients with 40 PD patients and 40 healthy subjects. Serum native thiol, total thiol, and disulfide levels were measured with a novel colorimetric, automated method. The thiol-disulfide ratio was also calculated. **Results:** The native thiol ($p < 0.001$) and total thiol ($p < 0.001$) levels, and the

1. [Thiol/disulfide homeostasis as a novel indicator of oxidative stress in obstructive sleep apnea patients.](#)

Dinc ME, Ozdemir C, Ayan NN, Bozan N, Ulusoy S, Koca C, Erel O.

Laryngoscope. 2016 Dec 21. doi: 10.1002/lary.26444. [Epub ahead of print]

PMID: 28000217

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2. [Dynamic thiol/disulfide homeostasis in children with attention deficit hyperactivity disorder and its relation with disease subtypes.](#)

Avcil S, Uysal P, Avcil M, Alışık M, Biçer C.

Compr Psychiatry. 2016 Nov 13;73:53-60. doi: 10.1016/j.comppsy.2016.11.003. [Epub ahead of print]

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3. [Thiol/disulfide homeostasis in postmenopausal osteoporosis.](#)

Korkmaz V, Kurdoglu Z, Alisik M, Turgut E, Sezgin OO, Korkmaz H, Ergun Y, Erel O.

J Endocrinol Invest. 2016 Nov 17. [Epub ahead of print]

PMID: 27858341

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4. [Disulfide stress in carbon monoxide poisoning.](#)

Ergin M, Caliskanturk M, Senat A, Akturk O, Erel O.

Clin Biochem. 2016 Nov;49(16-17):1243-1247. doi: 10.1016/j.clinbiochem.2016.07.019.

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5. [Changes in Thiol-Disulfide Homeostasis of the Body to Surgical Trauma in Laparoscopic Cholecystectomy Patients.](#)

Polat M, Ozcan O, Sahan L, Üstündag-Budak Y, Alisik M, Yilmaz N, Erel Ö.

J Laparoendosc Adv Surg Tech A. 2016 Dec;26(12):992-996.

PMID: 27705078

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6. [Dynamic disulfide/thiol homeostasis in lead exposure denoted by a novel method.](#)

Bal C, Ağış ER, Gündüzöz M, Büyükşekerci M, Alışık M, Şen O, Tutkun E, Yılmaz ÖH.

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Diabetes Research
and Clinical Practice

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



International
Diabetes
Federation



How does thiol/disulfide homeostasis change in prediabetic patients?

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Ozcan Erel^b, Nisbet Yilmaz^a, Serdar Guler^c

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Available online xxx

ABSTRACT

Aims: Our aim was to examine thiol/disulfide homeostasis, which has a critical role in many cellular activities such as antioxidant protection, detoxification, cell growth and apoptosis, in prediabetic patients.

Methods: The study population was formed of a total of 250 participants; 125 (54 males, 71 females) of which were newly diagnosed with prediabetes, aged over 18 and who had not received any prior treatment and 125 (52 males, 73 females) healthy volunteers. Prediabetic patients were diagnosed using a glucose tolerance test. In both groups, native thiol–disulfide



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American Journal of Emergency Medicine

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



Original Contribution

A novel oxidative stress marker in acute myocardial infarction; thiol/disulphide homeostasis ☆☆☆☆



Harun Kundi, MD^{a,*}, Ihsan Ates, MD^a, Emrullah Kiziltunc, MD^a, Mustafa Cetin, MD^a, Hulya Cicekcioglu, MD^a, Salim Neselioglu, MD^b, Ozcan Erel, MD^b, Ender Ornek, MD^a

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ABSTRACT

Background: The aim of this study was to investigate a novel oxidative stress marker (thiol/disulphide homeostasis) in patients with acute myocardial infarction (AMI) and compare the results with healthy controls for the first time in literature.

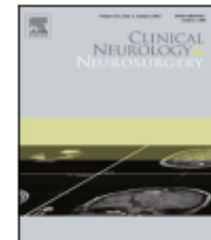
Methods: A total of 450 participants including 300 patients with AMI and 150 healthy individuals were included in the study. Left ventricular ejection fraction, body mass index, peak troponin I levels, triglyceride, total cholesterol, low-density lipoprotein, high-density lipoprotein (HDL), native thiol, total thiol, and disulphide as well as disulphide/native thiol and disulphide/total thiol ratios were compared between the groups.

Results: There were significant differences between AMI patients and the controls for left ventricular ejection fraction and troponin, HDL, native thiol, total thiol, and disulphide levels as well as disulphide/native thiol and disulphide/total thiol ratios ($P < .05$). Stepwise logistic regression model indicated that HDL (odds ratio [OR] = 0.923, $P < .001$) and disulphide levels (OR = 0.548, $P < .001$) and disulphide/total thiol ratio (OR = 0.356, $P < .001$) were significantly and independently related to AMI. The cutoff value of disulphide/total thiol ratio percentage on



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Clinical Neurology and Neurosurgery

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

Impairment of dynamic thiol–disulphide homeostasis in patients with idiopathic Parkinson’s disease and its relationship with clinical stage of disease

Gonul Vural^{a,*}, Sadiye Gumusyayla^a, Hesna Bektas^b, Orhan Deniz^a, Murat Alisik^c, Ozcan Erel^d

^a Department of Neurology, School of Medicine, Yildirim Beyazit University, Ankara, Turkey

^b Department of Neurology, Atatürk Training and Research Hospital, Ankara, Turkey

^c Department of Clinical Biochemistry, Atatürk Training and Research Hospital, Ankara, Turkey

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Keywords:

Parkinson’s disease

Oxidative stress

Thiol–disulphide homeostasis

ABSTRACT

Objective: The aim of this study was to investigate dynamic thiol–disulphide homeostasis in patients with idiopathic Parkinson’s disease and to determine its relationship with the clinical stage as assessed by the modified Hoehn and Yahr scale.

Design and methods: Fifty-two patients with Parkinson’s disease (PD), diagnosed according to the United Kingdom Brain Bank Criteria for idiopathic PD, and 41 healthy individuals were included in the study. Clinical staging of patients was performed according to the Hoehn and Yahr scale. Peripheral blood samples were taken from all participants, and their native thiol and total thiol concentrations were measured using the newly developed automated method. In addition, their amount of disulphide bonds, disulphide/native thiol, disulphide/total thiol and native thiol/total thiol ratios were calculated.

Results: Considering the data obtained from Parkinson’s patients and the control group, both native thiol (-SH) and total thiol (-SH+-S-S) levels were found significantly lower in patients with Parkinson’s disease. A negative and statistically significant relationship was found between both disease duration and dis-

Abstract

Send to:

Scand J Clin Lab Invest. 2015 Dec;75(8):667-73. Epub 2015 Aug 7.

The association between plasma thiol levels and left ventricular diastolic dysfunction in patient with hypertension.

Erkus ME¹, Altıparmak IH¹, Akyuz AR², Demirbag R¹, Sezen Y¹, Gunebakmaz O¹, Neselioglu S³, Erel O³.

Author information

Abstract

The balance of oxidant and antioxidant status plays an important role in the left ventricular diastolic dysfunction (LVDD) in patients with hypertension (HT). Thiol is an important part of antioxidant system in the body. The aim of this study was to investigate the relationship between plasma thiol levels and LVDD in patients with HT. A total of 138 patients with newly diagnosed essential hypertensive and 20 age-gender matched subjects as control group enrolled in the study. After echocardiographic assessment, the hypertensive patients were divided into three groups: Group 1: without LVDD (n = 41); group 2: with LVDD grade 1 (n = 57); and group 3: with LVDD grade 2 (n = 40). Plasma thiol, lipid and glucose levels were measured in all subjects. Plasma thiol levels were significantly different between the groups (all of $p < 0.05$). While the lowest thiol level was in the group 3, the highest level was in the control group. The presence of LVDD was correlated with age, systolic and diastolic blood pressure, thiol levels, and history of coronary artery disease and hyperlipidemia (all of $p < 0.05$). Age and thiol were however independent predictors of LVDD in multivariate analyses ($\beta = 0.318$, $p < 0.001$, and $\beta = -0.314$, $p < 0.001$, respectively). ROC-curve analysis revealed that thiol levels over $163 \mu\text{mol/L}$ predict LVDD in hypertensive patients with 75% sensitivity and 70% specificity (AUC = 0.783; 95% CI: 0.714-0.852). Plasma thiol is an independent predictor for the presence of LVDD. This suggests that thiol plays a role in the pathogenesis of diastolic function. Increased thiol levels may provide protection against the development of diastolic dysfunction.

KEYWORDS: Antioxidants; diastolic heart failure; hypertension; redox; thiol

[Abstract](#) ▾

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[Redox Rep.](#) 2015 Jul 22. [Epub ahead of print]

Thiol/disulfide homeostasis: A prognostic biomarker for patients with advanced non-small cell lung cancer?

[Dirican N](#), [Dirican A](#), [Sen O](#), [Aynali A](#), [Atalay S](#), [Bircan HA](#), [Öztürk Ö](#), [Erdoğan S](#), [Cakir M](#), [Akkaya A](#).

Abstract

Background The aim of this study was to investigate oxidative stress and thiol/disulfide status with a novel automated homeostasis assay in advanced non-small cell lung cancer (NSCLC). **Methods** Thirty-five patients with advanced NSCLC, who had been newly diagnosed and previously untreated, and 35 healthy subjects were chosen for the study. We measured plasma total thiol (-SH+-S-S-), native thiol (thiol) (-SH), and disulfide (-S-S-) levels in the patients with NSCLC and the healthy subjects. The thiol/disulfide (-SH/-S-S-) ratio was also calculated. **Results** Statistically significant differences between the patient group and the control group were detected for the thiol/disulfide parameters. The mean native thiol, total thiol, and disulfide levels were significantly lower in the group with advanced stage NSCLC. The cut-off value was 313 and 13.8 for native thiol and disulfide, respectively. Median overall survival (OS) was significantly shorter in patients with low native thiol and disulfide levels according to the cut-off value (respectively, $P = 0.001$; $P = 0.006$). Native thiol, total thiol, and disulfide levels were correlated with Karnofsky performance status (KPS), OS, and age. Additionally, hierarchical regression analyses showed gender, KPS, lung metastases, and plasma native thiol levels were the determinants of OS in the final model. **Conclusion** These results suggest that in advanced stage NSCLC, the native thiol, total thiol, and disulfide levels decrease, while the native thiol/disulfide ratio does not change. Low levels of thiol/disulfide parameters are related to tumor aggressiveness and may predict a poor outcome for patients with NSCLC.

KEYWORDS: Disulfide; Lung cancer; Oxidative stress; Prognosis; Thiol

To the best of our knowledge, this study is the first report on the correlation between native thiol / disulphide ratio (TDR) and Sx scores in NSTEMI patients, with analysis of the correlations of TDR with angiographic and clinical risk scores.

MATERIAL AND METHODS

A number of studies have shown that oxidative stress levels increase in prediabetes [12] and [13]. However, there are not enough studies on dynamic thiol/disulfide homeostasis, which has a critical role in many intracellular activities such as antioxidant protection, signal transduction, detoxification, cell growth and apoptosis [14].

Therefore, we aimed to examine dynamic thiol/disulfide homeostatic status in prediabetic patients by using a new and automated analysis method developed by Erel and Neselioglu [14]. As far as we are aware, our study is the first to evaluate the thiol–disulfide homeostatic status in prediabetes with this newly developed method.

Thiol-disulfide homeostasis is important in many biological processes. A single side of this double-sided balance has been investigated since 1979.²⁵ Both variable levels are measured one by one. In this study, we measured them cumulatively with a novel and automated method.²⁶ The thiol-disulfide homeostatic status can be evaluated completely.

We aimed to determine thiol-disulfide homeostasis, which has a vital role, in pregnant women with IUGR, and to investigate the relationship among homeostatic parameters and disease severity.

To the best of our knowledge, this is the first study in this area.

METHODS

Study design

To the best of our knowledge, no studies up to date investigated thiol/disulphide homeostasis as a novel oxidative stress marker in patients with acute myocardial infarction (AMI) and compared the results with healthy controls.

5. Conclusions

To our knowledge, our study is the first that examined thiol–disulphide homeostasis in patients with Parkinson’s disease. The results of our study showed that thiol–disulphide homeostasis can be used in monitoring disease progression. This balance can be measured accurately with a newly developed automated method. Furthermore, the method is easily available and a relatively cheap method.

In conclusion, the results of this study showed that dynamic TDH is imbalanced, and the paired system shifts to the disulfide side in postmenopausal osteoporosis.

5. Conclusion

The results of our study showed that oxidative stress plays a major role in MS, and thiol-disulfide balance has shifted to the disulphide band formation during acute exacerbation of MS. This newly developed test can be used as a novel oxidative stress marker in MS patients with clinical relapse. Moreover, it is a cost-efficient and easily accessible method.

In conclusion, this study demonstrated that dynamic thiol/disulphide homeostasis shifts towards disulphide formation as a result of thiol oxidation in patients with MHT. Prospective, randomised controlled trials are necessary to elucidate the question of whether abnormal thiol/disulphide status lies in the pathogenesis of MHT or is formed as a result of MHT.

Association of thiol/disulfide ratio with syntax score in patients with NSTEMI

H Kundi, Ö Erel, A Balun, H Çiçekçioğlu... - Scandinavian Journal of Cardiology, 2015 - Taylor & Francis

Abstract Objective. The aim of this study was to investigate the relation between native thiol/disulfide ratio (TDR) and severity of coronary atherosclerosis as assessed by the Syntax score (SXscore) in patients with non-ST elevation myocardial infarction (NSTEMI)

Alıntılanma sayısı: 14 İlgili makaleler 7 sürümün hepsi Web of Science: 7 Alıntı yap Kaydedildi

A novel oxidative stress marker in acute myocardial infarction; thiol/disulphide homeostasis

H Kundi, I Ates, E Kiziltunc, M Cetin... - The American journal of Cardiology, 2015 - Elsevier

Background The aim of this study was to investigate a novel oxidative stress marker (thiol/disulphide homeostasis) in patients with acute myocardial infarction (AMI) and compare the results with healthy controls for the first time in literature. Methods A total of 450

Alıntılanma sayısı: 19 İlgili makaleler 5 sürümün hepsi Alıntı yap Kaydet

Determination of thiol/disulphide homeostasis in type 1 diabetes mellitus and the factors associated with thiol oxidation

I Ates, M Kaplan, M Yuksel, D Mese, M Alisik, Ö Erel... - Endocrine, 2016 - Springer

Abstract In this study, we aimed to examine dynamic thiol/disulfide homeostasis in type 1 diabetes mellitus (T1DM) and identify the factors associated with thiol oxidation. Thirty-eight subjects (18 male, 20 female) diagnosed with T1DM and 38 (17 male, 21 female) healthy

Alıntılanma sayısı: 6 İlgili makaleler 4 sürümün hepsi Web of Science: 1 Alıntı yap Kaydedildi

How does thiol/disulfide homeostasis change in prediabetic patients?

I Ates, M Kaplan, B Inan, M Alisik, O Erel... - Diabetes research and clinical practice, 2015 - Elsevier

Aims Our aim was to examine thiol/disulfide homeostasis, which has a critical role in many cellular activities such as antioxidant protection, detoxification, cell growth and apoptosis, in prediabetic patients. Methods The study population was formed of a total of 250 participants;

Alıntılanma sayısı: 7 İlgili makaleler 5 sürümün hepsi Web of Science: 1 Alıntı yap Kaydet

Thiol/disulfide homeostasis in patients with idiopathic recurrent pregnancy loss assessed by a novel assay: Report of a preliminary study

K Erkenekli, CY Sanhal, A Yucel... - Journal of Obstetrics and Gynaecology, 2016 - Wiley Online Library

Aim To evaluate the relationship between idiopathic recurrent pregnancy loss (RPL) and oxidative stress (OS) by means of thiol/disulfide homeostasis via a novel technique. Methods

Thirty-nine pregnant women diagnosed with idiopathic RPL were compared with 50 healthy

Alıntılanma sayısı: 4 İlgili makaleler 3 sürümün hepsi Alıntı yap Kaydet

Dynamic thiol-disulfide homeostasis in hyperemesis gravidarum

M Ergin, BD Cendek, S Neselioglu, AF Avsar... - Journal of Obstetrics and Gynaecology, 2015 - nature.com

Study Design: Twenty-six pregnant women with hyperemesis gravidarum and 37 healthy pregnant women were included in the study. Native thiol, disulfide and total thiol

concentrations were measured with a novel automated method. Results: Serum disulfide

Alıntılanma sayısı: 5 İlgili makaleler 6 sürümün hepsi Alıntı yap Kaydet Diğer

Dynamic thiol/disulphide homeostasis in patients with newly diagnosed primary hypertension

I Ates, N Ozkayar, B Inan, FM Yilmaz... - Journal of the American College of Nutrition, 2016 - Elsevier

Abstract We aimed to investigate the thiol/disulphide homeostasis in patients with newly diagnosed primary hypertension with a novel and automated method. Blood thiol/disulphide homeostasis, which consists of native thiol/disulphide exchanges, was investigated in 45

Alıntılanma sayısı: 4 İlgili makaleler 5 sürümün hepsi Alıntı yap Kaydet

Serum thiol/disulphide homeostasis in preeclampsia

S Ozler, O Erel, E Oztas, AO Ersoy, M Ergin... - Hypertension in Pregnancy, 2015 - Taylor & Francis

Objective: To determine the serum thiol/disulphide homeostasis in preeclampsia and to investigate the association with clinical parameters. Methods: Forty-three pregnant women with preeclampsia and 43 healthy, uncomplicated pregnancies were included in the study.

Alıntılanma sayısı: 6 İlgili makaleler 3 sürümün hepsi Alıntı yap Kaydet

Thiol/disulfide homeostasis: A prognostic biomarker for patients with advanced non-small cell lung cancer?

N Dirican, A Dirican, O Sen, A Aynali, S Atalay... - Redox Biology, 2016 - Taylor & Francis

Background: The aim of this study was to investigate oxidative stress and thiol/disulfide status with a novel automated homeostasis assay in advanced non-small cell lung cancer (NSCLC). Methods: Thirty-five patients with advanced NSCLC, who had been newly

Alıntılanma sayısı: 3 İlgili makaleler 4 sürümün hepsi Web of Science: 1 Alıntı yap Kaydet

**Kronik Hepatit B
hastalarında Tiyol-Disülfid
Homeostazının
Değerlendirilmesi**

Amaç

- Kronik Hepatit B tanılı hastaların HBV DNA seviyeleri ile yeni bir oksidatif stres belirteci olan **dinamik tiyol-disülfid homeostazi** ve oksidan-antioksidan dengesi arasındaki ilişkiyi değerlendirmek



Gereç- Yöntem

- Çalışmaya Hepatit B tanısıyla takipli **132** hasta alınmıştır.
- Kontrol grubu Hepatit B belirteçleri negatif olan negatif sağlıklı **42** gönüllüden oluşmaktadır
- Çalışma grubu HBV DNA seviyelerine göre 4 gruba ayrıldı.
- HBV DNA düzeylerinin ölçümü otomatik sistem (ROCHE / COBAS® TaqMan® Sistemi) ile real time polimeraz zincir reaksiyonu (PCR) ile gerçekleştirildi
- Tiyol / disülfid homeostaz parametrelerinden nativ tiyol, total tiyol, ve disülfid seviyeleri ile disülfid-nativ tiyol, disülfid-total tiyol, ve nativ tiyol-total tiyol oranları, Erel ve Neselioglu tarafından yeni geliştirilen tam otomatik ve spektrofotometrik bir yöntemle ölçüldü
- Bu çalışma, Helsinki İyi Klinik Uygulama Yönergeleri Bildirgesi'ne uygun olarak yapılmış olup, Ahi Evran Üniversitesi Etik Kurulu tarafından onaylanmıştır (2017-12/117).

	HBV DNA IU/ml (n=132)	HBe Ag Positive (n=24)	ALT (IU/L)
Grup 1	<6 (33)	1	26.18±11.9
Grup 2	6-10 ³ (42)	-	26.19±16.5
Grup 3	10 ³ -10 ⁶ (36)	5	26.37±14.9
Grup 4	>10 ⁶ (21)	18	63±49.6

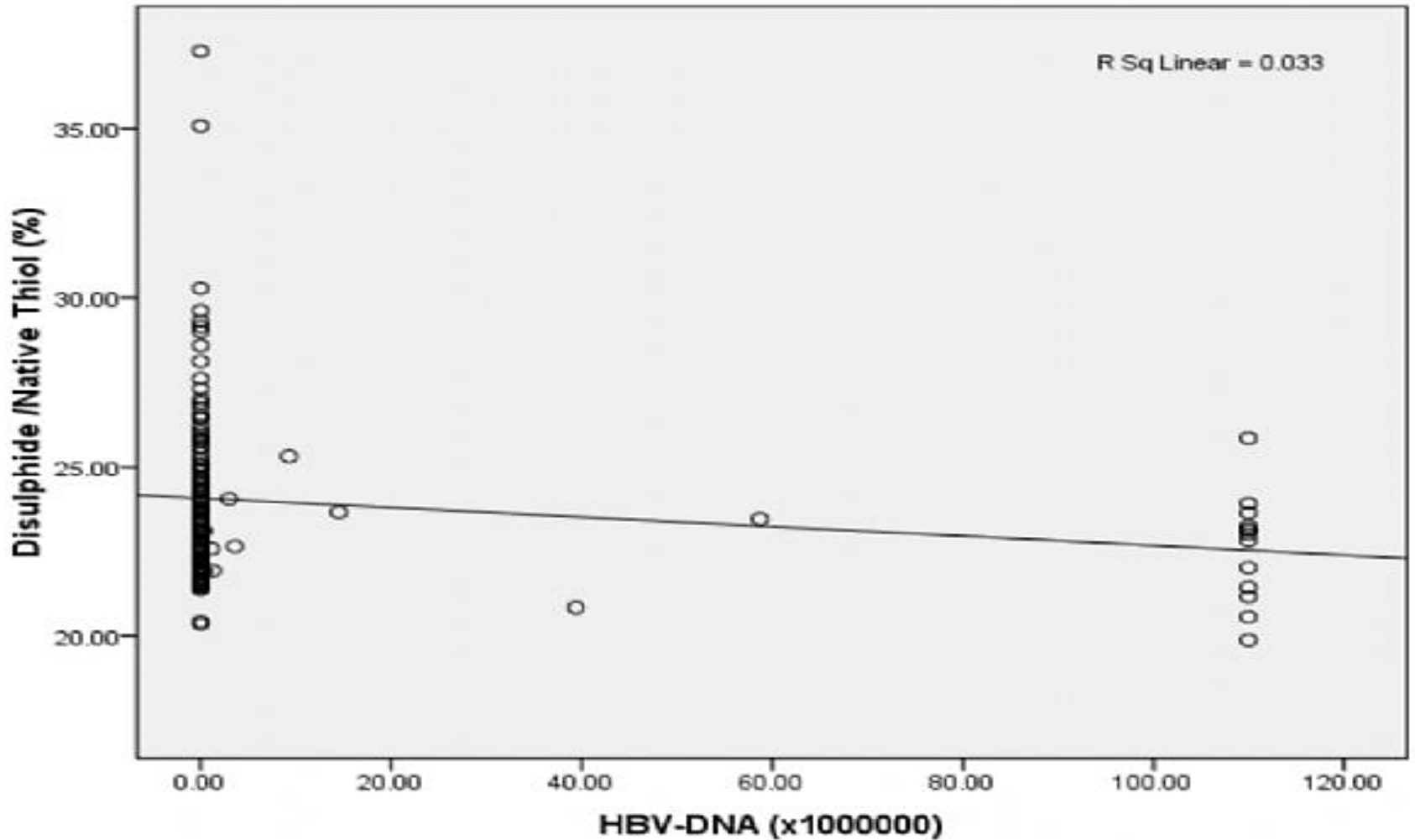
Bulgular

	Hastalar (n= 132)	Kontrol (n= 42)	p değeri
Yaş(yıl)	43.1 ± 11.7	41.3± 15.6	0.306
Cinsiyet(E/K)	74/58	19/23	0.137
ALT(IU/L)	32.1 ± 27.2	23.8 ± 6.4	0.001*
Native Thiol (µmol/L)	286.0 ± 62.8	376.5 ± 86.9	<0.001*
Total Thiol (µmol/L)	421.7 ± 89.2	555.9 ± 125.1	<0.001*
Disulphide (µmol/L)	67.9 ± 14.2	89.7 ± 19.4	<0.001*
Disulphide /Native Thiol (%)	23.9 ± 2.5	23.9 ± 1.3	0.138
Disulphide /Total Thiol (%)	16.1 ± 1.1	16.1 ± 0.6	0.137
Native Thiol/Total Thiol (%)	67.7 ± 2.2	67.6 ± 1.2	0.140

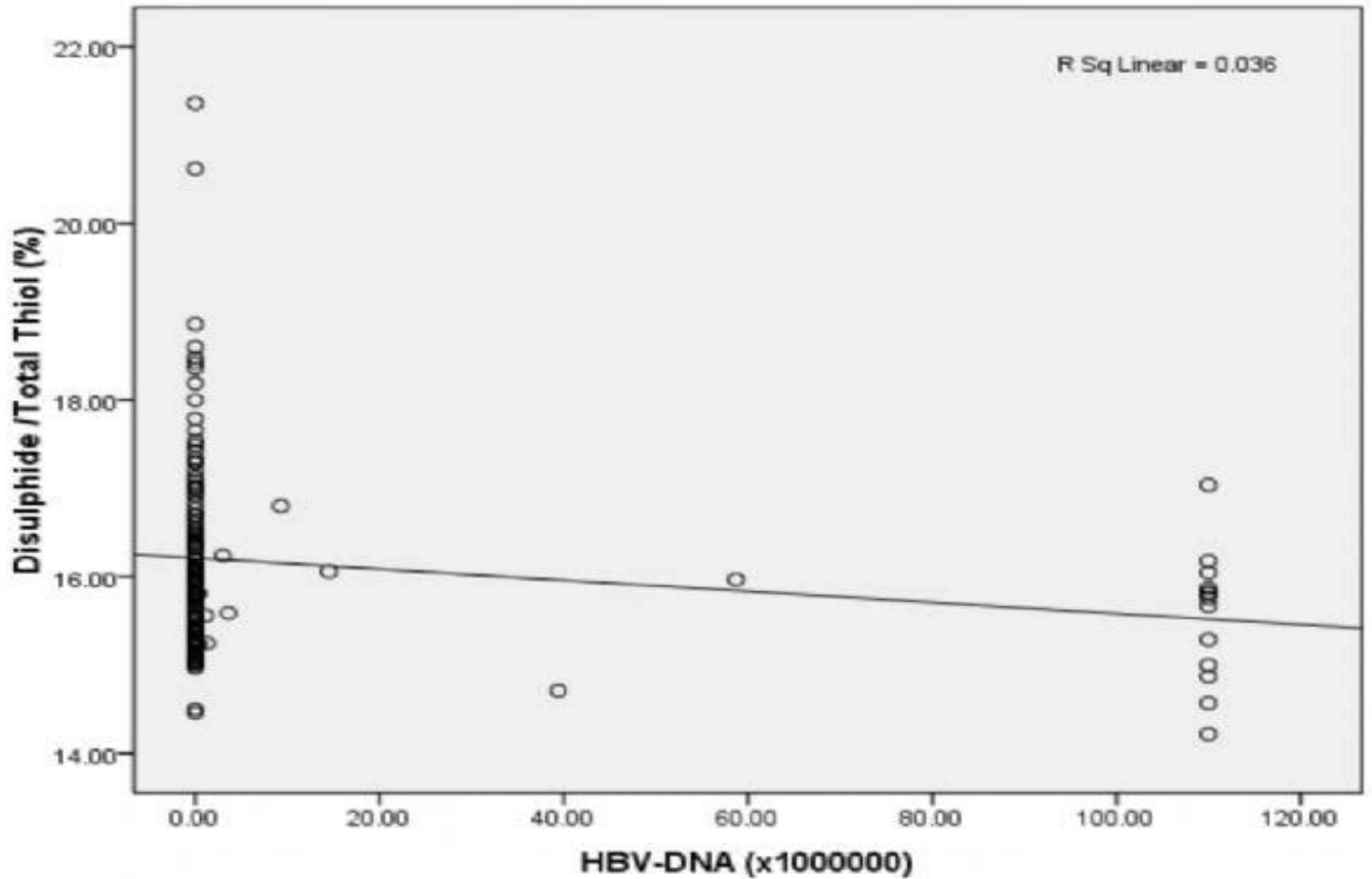
- Hepatit B hastaları ve kontrol grubundan oluşan çalışma popülasyonunun demografik özellikleri ve laboratuvar bulguları

Bulgular

	Grup 1(n=33)	Grup 2(n=40)	Grup 3(n=38)	Grup 4(n=21)	p değeri
Yaş(yıl)	46.6 ± 10.4	43.0 ± 12.2	40.4 ± 12	43.2 ± 11.8	0.175
Cinsiyet(E/K)	21/12	12/18	20/18	11/10	0.787
HBV DNA(IU/mL)	<6	343.3 ± 283.3	28480 ± 82911	74330000 ± 33170400	<0.001*
ALT(IU/L)	29.2 ± 15.8	25.5 ± 12.8	32.2 ± 24.6	49.0 ± 51.0	0.011*
Native Thiol (µmol/L)	276.5 ± 57.5	281.1 ± 51.2	300.8 ± 79.3	283.2 ± 56.2	0.372
Total Thiol (µmol/L)	411.5 ± 79.1	418.2 ± 74.5	439.6 ± 113.7	412.0 ± 80.5	0.523
Disulphide (µmol/L)	67.5 ± 11.7	68.5 ± 13.3	69.4 ± 17.7	64.4 ± 12.6	0.617
Disulphide /Native Thiol (%)	24.8 ± 2.8	24.5 ± 3.1	23.2 ± 1.7	22.8 ± 1.5	0.005*
Disulphide /Total Thiol (%)	16.5 ± 1.2	24.5 ± 3.1	15.8 ± 0.8	15.6 ± 0.7	0.003*
Native Thiol/Total Thiol (%)	66.9 ± 2.4	67.2 ± 2.6	68.3 ± 1.5	68.7 ± 1.4	0.003*



Serum Disulfid / Nativ Tiol oranı (%) ve HBV-DNA arasındaki ilişki ($r = -0.294$, $p = 0.001$)



Serum Disülfid / Total Tiyol oranı (%) ve HBV-DNA arasındaki ilişki ($r = -0.294$, $p = 0.001$)

Sonu

- Bu alıřma KHB hastalarında serum **Tiyol / disülfid homeostaz** dengesinin HBV DNA seviyelerine ve saęlıklı kontrollere kıyasla araştırıldıęı ilk alıřmadır. Sonularımız oksidatif stresin HBV-DNA seviyelerinin yükselmesiyle arttıęını ve antioksidan savunmanın zayıflamıř olabileceęini göstermektedir.
- Tiyol-disülfid homeostazı kronik hepatit B hastalarında **kronikleřme evrelerini** takip aısından **invaziv olmayan** umut vaad eden bir belirte olabilir.