PAVLOV, A.N., otv. za vypusk; VOLODICHEVA, V.N.; IVANOVA, A.I.; KULAKOV, I.N.; LYAMINA, T.N.; MIT'KINA, L.I.; POZDNYAKOVA, N.P.; RODIONOVA, L.I.; ROMANOVA, N.M.; SOFIYEV, E.S.; CHICHKINA, A.A.; TRESORUKOVA, Z.G.; BOGATYREV, P.P.; BROVKINA, A.I.; IVANOVA, L.D.; IVASHKIN, G.A.; KAMNEV, N.I.; LYSANOVA, L.A.; OZHEREL'YEVA, Z.I.; PAVLOVA, T.I.; TYUTYUNOVA, N.I.; UMNITSYNA, A.P.; ZHIVILIN, N.N.; ALESHICHEV, M.P.; VINOGRADOV, V.I.; YEREMIN, F.S.; KRAVCHENKO, Ye.P.; LOVACHEVA, M.V.; NIKOL'SKAYA, V.S.; MAKHOV, G.I.; SKEGINA, A.V.; TAREYEV, A.V.; KHOLINA, A.V.; BRYANSKIY, A.M.; BURMISTROVA, V.D.; GRIGOR'YEVA, A.M.; LUTSENKO, A.I.; OREKHOVA, Z.V.; TEPLINSKAYA, N.V.; FEOKTISTOVA, V.I.; BUTORIN, I.M.; BOCHKAREVA, L.D.; BURENINA, V.A.; VETUSHKO, A.M.; VIKHLYAYEV, A.A.; SOROKIN, B.S.; TSYBENKO, L.T.; KHLEBNIKOV, V.N.; DUMNOV, D.I.; STEPANOVA, V.A.; MANYAKIN, V.I., red.; VAKHATOV, A.M.; MAKAROVA, O.K., red.izd-va; PYATAKOVA, N.D., tekhn.red.

[Soviet agriculture; a statistical manual] Sel'skoe khoziaistvo SSSR; statisticheskii sbornik. Moskva, 1960. 665 p.
(MIRA 13:5)

1. Russia (1923- U.S.S.R.) TSentral'noye statisticheskoye upravleniye. 2. Upravleniye statistiki sel'skogo khozyaystva TSentral'nogo statisticheskogo upravleniya SSSR (for all except Makarova, Pyatakova).

(Agriculture--Statistics)

GREKHOVICH, K. D.

Mbr., Lab. "Chemistry of Aluminum, Inst. [illegible] M.V. [illegible] Acad. Sci. SSSR, Moscow, -1947-.

"Procollo[illegible] of the [illegible]." Tekhnika, [illegible], No. 1, 1947.

[illegible], 1: [illegible], 1947)

CA OREKHOVICH, V. D.

Enzymic hydrolysis of crystalline skin protein. V. N. Orekhovich, A. A. Tustanovskii, and V. D. Orekhovich. Doklady Akad. Nauk S.S.S.R. 87, 475-7(1952).—The crystal protein from rat skin, contg. 16.1% N, 50.0% C, and 7.23% H, was hydrolyzed with papain, cathepsin, pepsin, trypsin, and chymotrypsin. The most intensive hydrolyses with these enzymes took place at the following pH values, resp.: 3.67 (2nd max. 5–6), 4.0, 3.67, 7.3, and 7.3. Cathepsin at pH 4 gives liberation of at least 40% peptide links in 24 hrs. at 37°. Trypsin reacts much more slowly, and chymotrypsin is even less active. G. M. Kosolapoff

CA

11 f

Procollagen content of the skin of animals at various age levels. K. D. Orekhovich. *Doklady Akad. Nauk S.S.S.R.* 71, 521–2(1950).—Detn. of procollagen by the method of Tustanovskii (*C.A.* 42, 937*d*) in guinea pigs revealed that young animals (10 days to 3–6 months) contain 7–10% procollagen in the skin, which declines to 3–4% at 7–8 months, and finally to 1–2% in adults. The extn with salts of pH from 1.5 to 5.02 showed that the relation of age and procollagen content is not affected by conditions of extn.

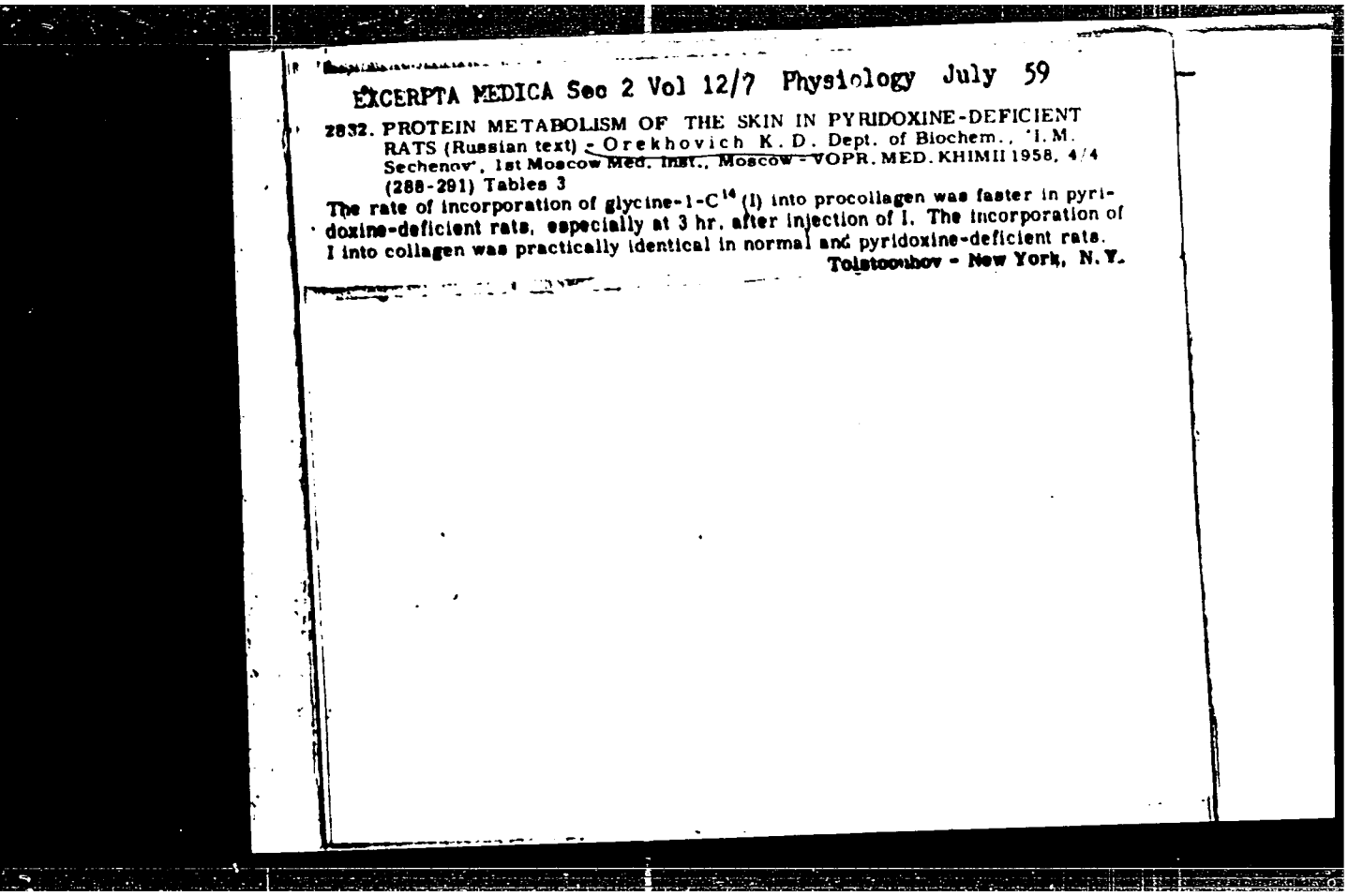
G. M. Kosolapoff

OMELYANOVICH, K. D.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kulture, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

Name	Title of Work	Nominated by
Omelyanovich, K. D.	"Preobrazheniye, [illegible]"	[illegible]

SO: W-30604, 7 July 1954

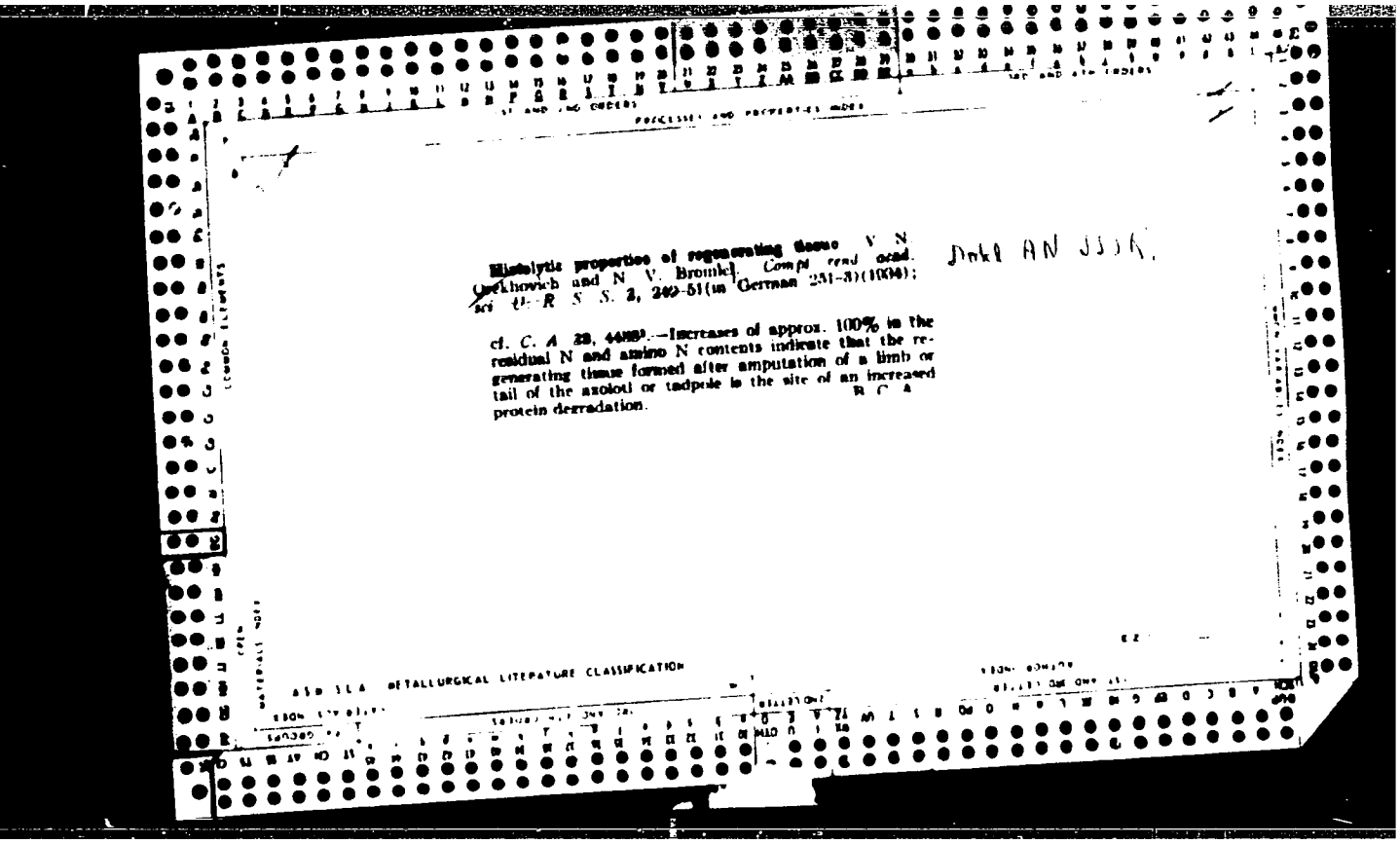


EXCERPTA MEDICA Sec 2 Vol 12/7 Physiology July 59

2832. PROTEIN METABOLISM OF THE SKIN IN PYRIDOXINE-DEFICIENT RATS (Russian text) - Orekhovich K. D. Dept. of Biochem., I. M. Sechenov', 1st Moscow Med. Inst., Moscow - VOPR. MED. KHIMII 1958, 4/4 (288-291) Tables 3

The rate of incorporation of glycine-1-C^{14} (I) into procollagen was faster in pyridoxine-deficient rats, especially at 3 hr. after injection of I. The incorporation of I into collagen was practically identical in normal and pyridoxine-deficient rats.

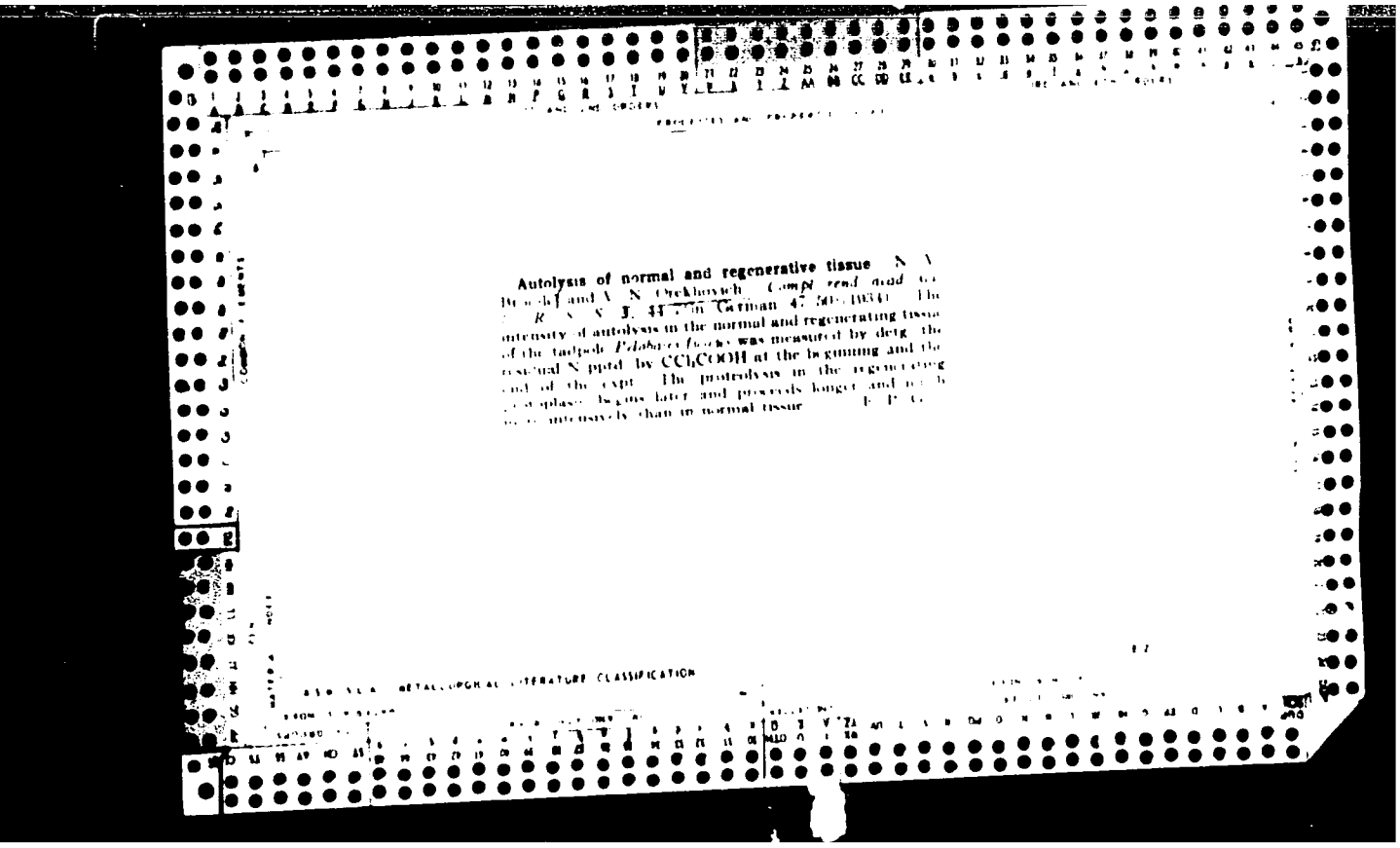
Tolstoouhov - New York, N.Y.



Histolytic properties of regenerating tissue. V. N. Orekhovich and N. V. Bromlei. *Compt. rend. acad. sci. U.R.S.S.* 2, 249-51 (in German 251-3)(1934); cf. *C. A.* 28, 4488⁹.—Increases of approx. 100% in the residual N and amino N contents indicate that the regenerating tissue formed after amputation of a limb or tail of the axolotl or tadpole is the site of an increased protein degradation. R. C. A.

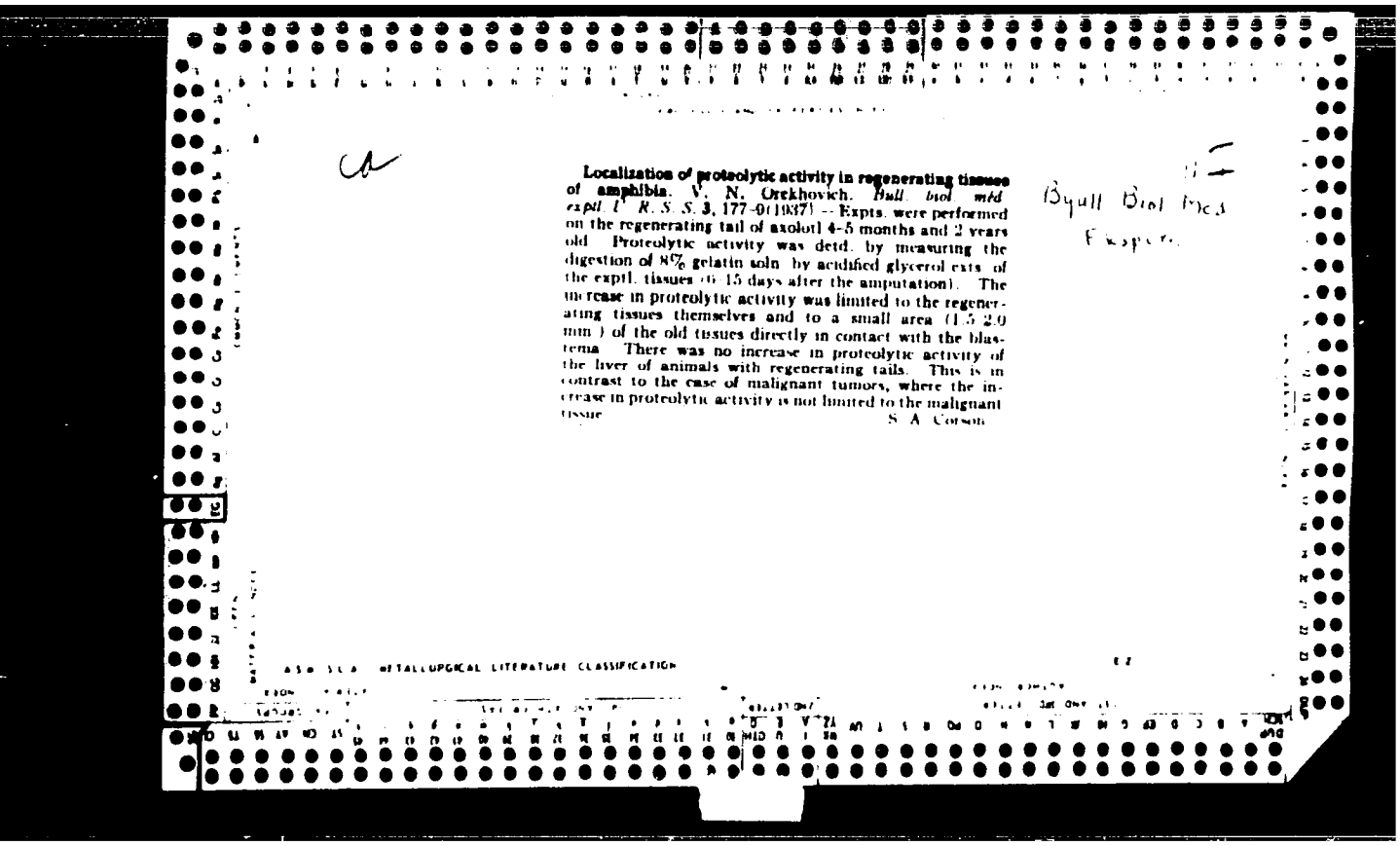
Dokl AN SSSR.

ASB 31 A METALLURGICAL LITERATURE CLASSIFICATION



Autolysis of normal and regenerative tissue N. V. [illegible] and A. N. Orekhovich. *Compt. rend. acad. sci. U.R.S.S.* 44 [illegible] in German 47 [illegible]. The intensity of autolysis in the normal and regenerating tissue of the tadpole *Polobates fuscus* was measured by detg. the residual N ppted by CCl_3COOH at the beginning and the end of the expt. The proteolysis in the regenerating tissue begins later and proceeds longer and more intensively than in normal tissue. [illegible]

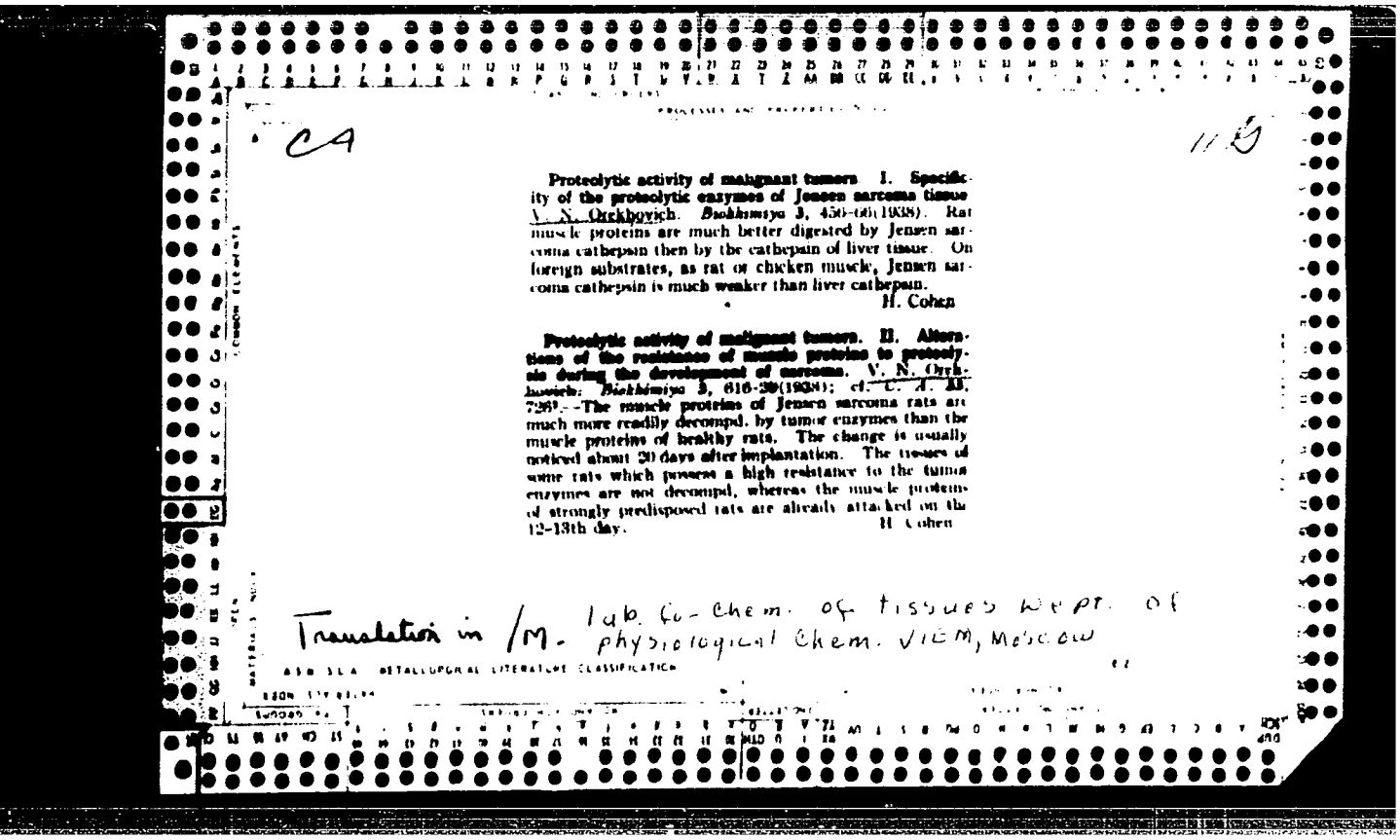
[illegible] METALLURGICAL LITERATURE CLASSIFICATION



Localization of proteolytic activity in regenerating tissues of amphibia. V. N. Orekhovich. *Bull. biol. med. exptl. U. R. S. S.* 3, 177–9 (1937). -- Expts. were performed on the regenerating tail of axolotl 4–5 months and 2 years old. Proteolytic activity was detd. by measuring the digestion of 8% gelatin soln. by acidified glycerol exts. of the exptl. tissues (6–15 days after the amputation). The increase in proteolytic activity was limited to the regenerating tissues themselves and to a small area (1.5–2.0 mm.) of the old tissues directly in contact with the blastema. There was no increase in proteolytic activity of the liver of animals with regenerating tails. This is in contrast to the case of malignant tumors, where the increase in proteolytic activity is not limited to the malignant tissue.

S. A. Corson

Bull Biol Med Exper.



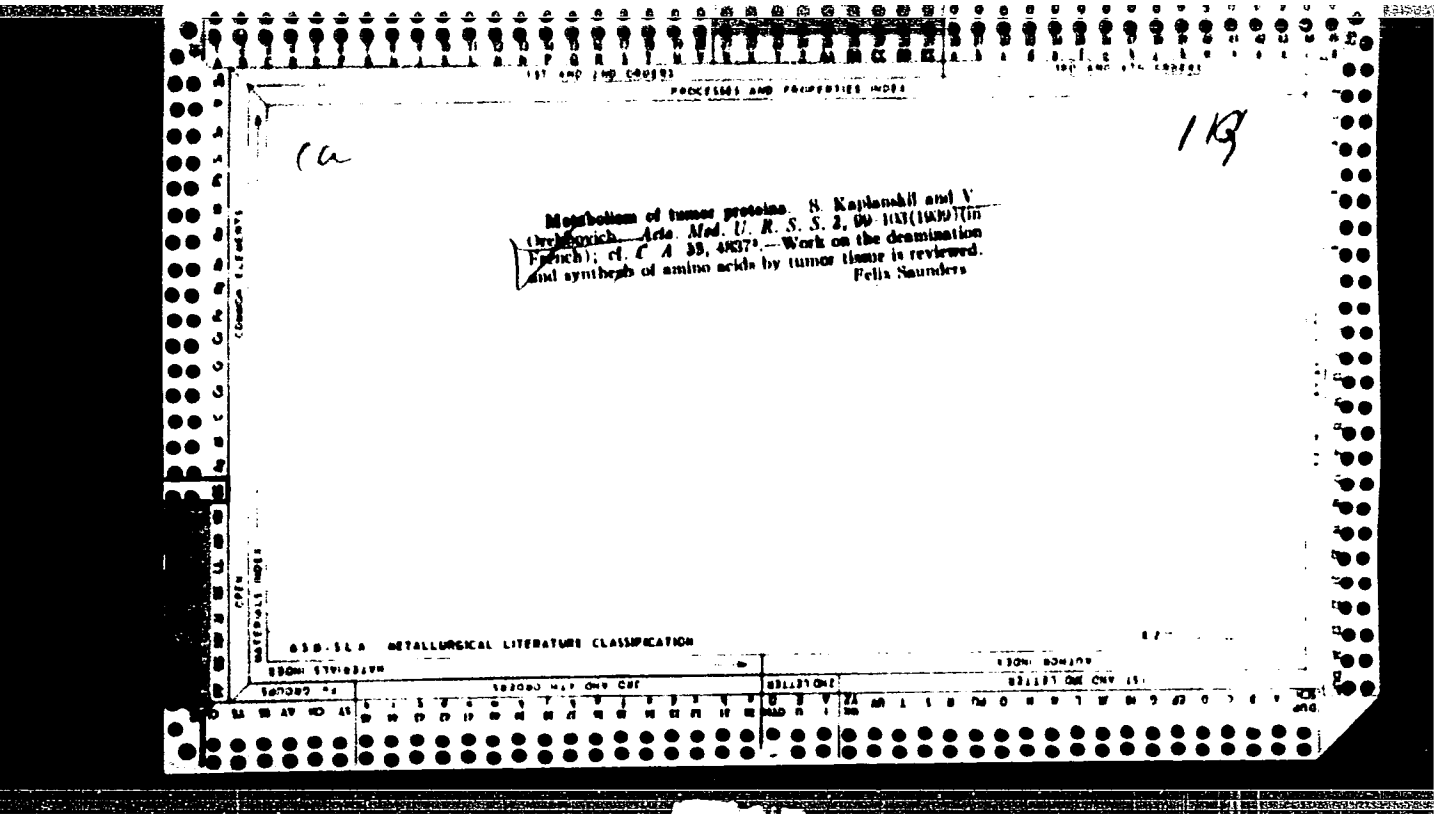
CA

11 5

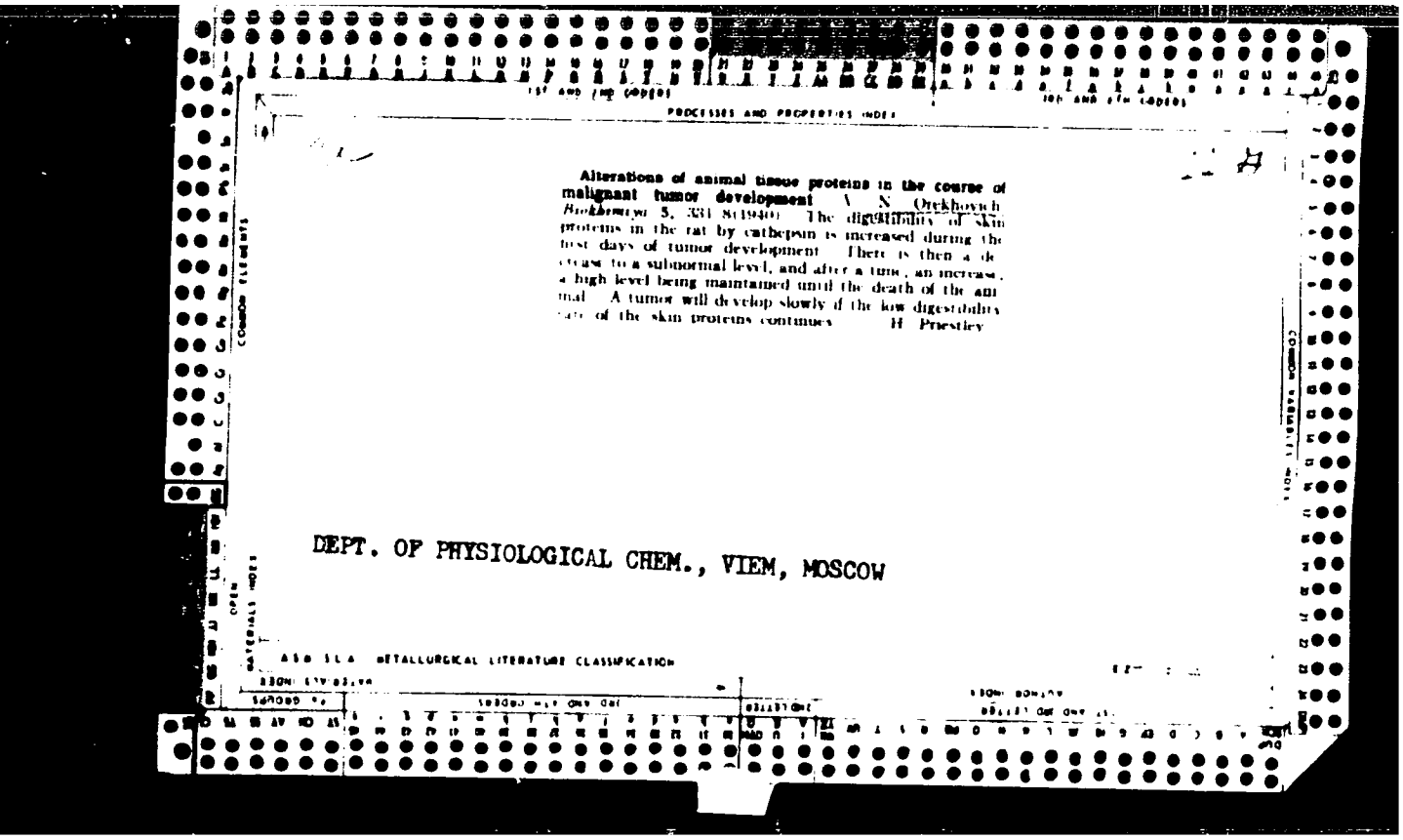
Proteolytic activity of malignant tumors. I. Specificity of the proteolytic enzymes of Jensen sarcoma tissue. V. N. Orekhovich. *Biokhimiya* 3, 450–66(1938). Rat muscle proteins are much better digested by Jensen sarcoma cathepsin then by the cathepsin of liver tissue. On foreign substrates, as rat or chicken muscle, Jensen sarcoma cathepsin is much weaker than liver cathepsin.
H. Cohen

Proteolytic activity of malignant tumors. II. Alterations of the resistance of muscle proteins to proteolysis during the development of sarcoma. V. N. Orekhovich. *Biokhimiya* 3, 616–30(1938); cf. C. A. 33, 7269.—The muscle proteins of Jensen sarcoma rats are much more readily decompd. by tumor enzymes than the muscle proteins of healthy rats. The change is usually noticed about 20 days after implantation. The tissues of some rats which possess a high resistance to the tumor enzymes are not decompd, whereas the muscle proteins of strongly predisposed rats are already attacked on the 12–13th day.
H. Cohen

Translation in /M. lab. for Chem. of tissues Dept. of physiological Chem. VIEM, Moscow



Metabolism of tumor proteins. S. Kaplanskii and V. Orekhovich. *Acta. Med. U. R. S. S.* 2, 00-113(1936)(in French); cf. *C. A.* 33, 4837⁹.—Work on the deamination and synthesis of amino acids by tumor tissue is reviewed.
Felix Saunders

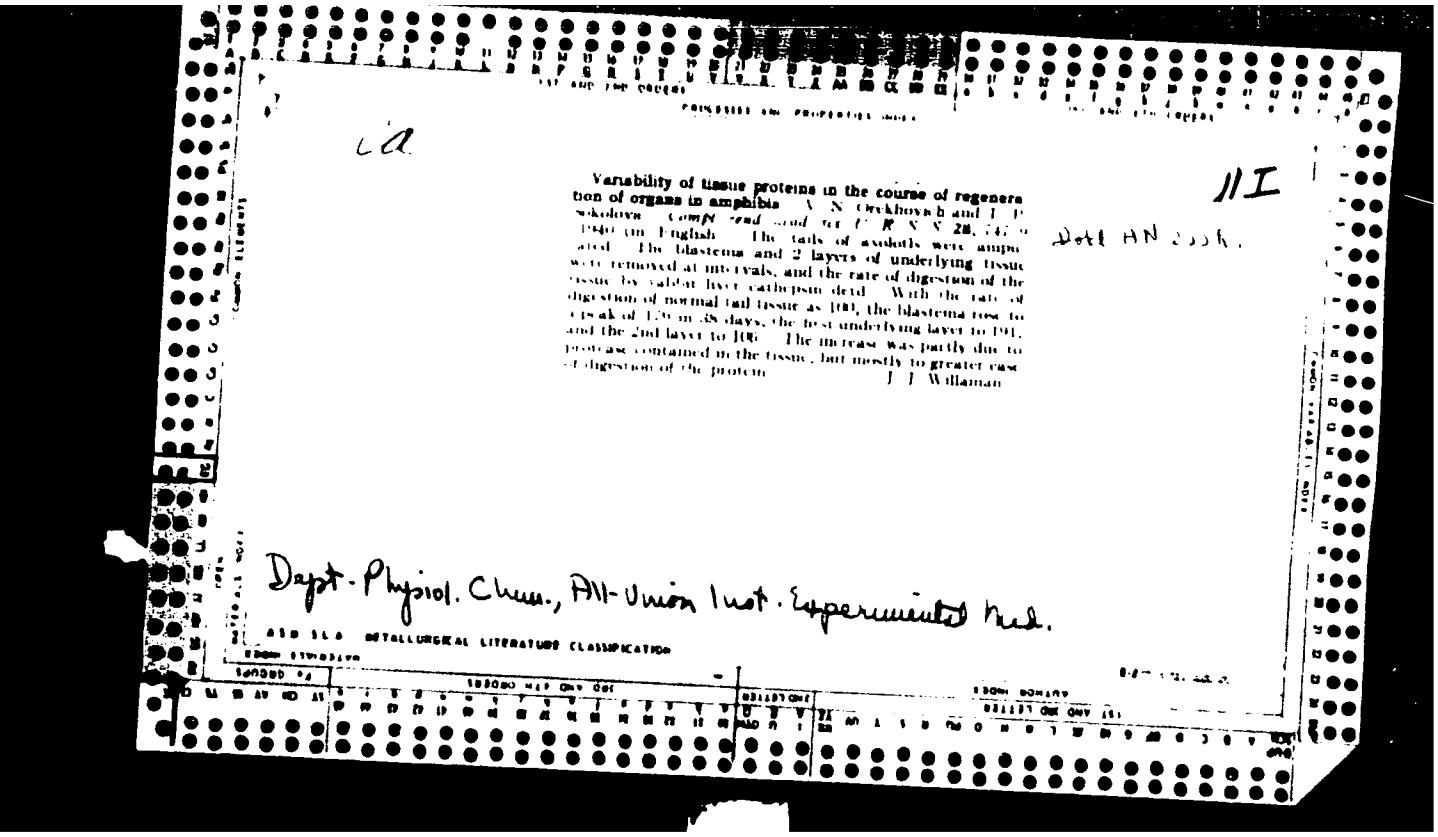


PROCESSES AND PROPERTIES INDEX

Alterations of animal tissue proteins in the course of malignant tumor development V N Orekhovich *Biokhimiya* 5, 331 8(1940) The digestibility of skin proteins in the rat by cathepsin is increased during the first days of tumor development There is then a decrease to a subnormal level, and after a time, an increase, a high level being maintained until the death of the animal A tumor will develop slowly if the low digestibility rate of the skin proteins continues H Priestley

DEPT. OF PHYSIOLOGICAL CHEM., VIEM, MOSCOW

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION



ca

III

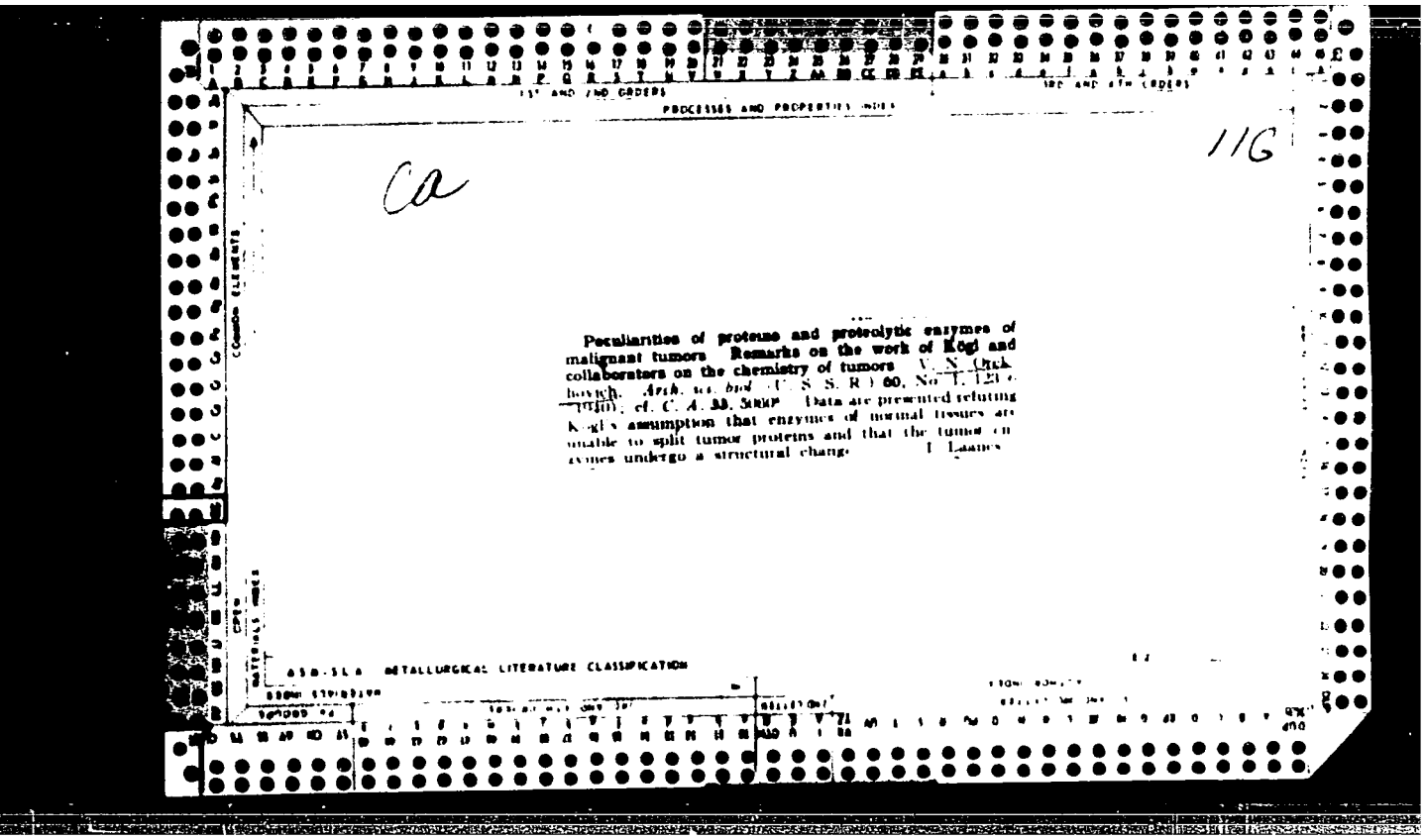
Variability of tissue proteins in the course of regeneration of organs in amphibia. V. N. Orekhovich and I. P. Sokolova. *Compt. rend. acad. sci. U.R.S.S.* 28, 747-9 (1940) (in English). The tails of axolotls were amputated. The blastema and 2 layers of underlying tissue were removed at intervals, and the rate of digestion of the tissue by rabbit liver cathepsin determined. With the rate of digestion of normal tail tissue as 100, the blastema rose to a peak of 170 in 48 days, the first underlying layer to 191, and the 2nd layer to 106. The increase was partly due to protease contained in the tissue, but mostly to greater ease of digestion of the protein.

J. J. Williaman

Dott HN 2004.

Dept. Physiol. Chem., All-Union Inst. Experimental Med.

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION



Ca

116

Peculiarities of protease and proteolytic enzymes of malignant tumors. Remarks on the work of Kögl and collaborators on the chemistry of tumors. V. N. Orekhovich. *Arkh. sov. med.* (U. S. S. R.) 60, No. 1, 121-6 (1950); cf. *C. A.* 33, 5882. Data are presented refuting Kögl's assumption that enzymes of normal tissues are unable to split tumor proteins and that the tumor enzymes undergo a structural change. I. Lasnes

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

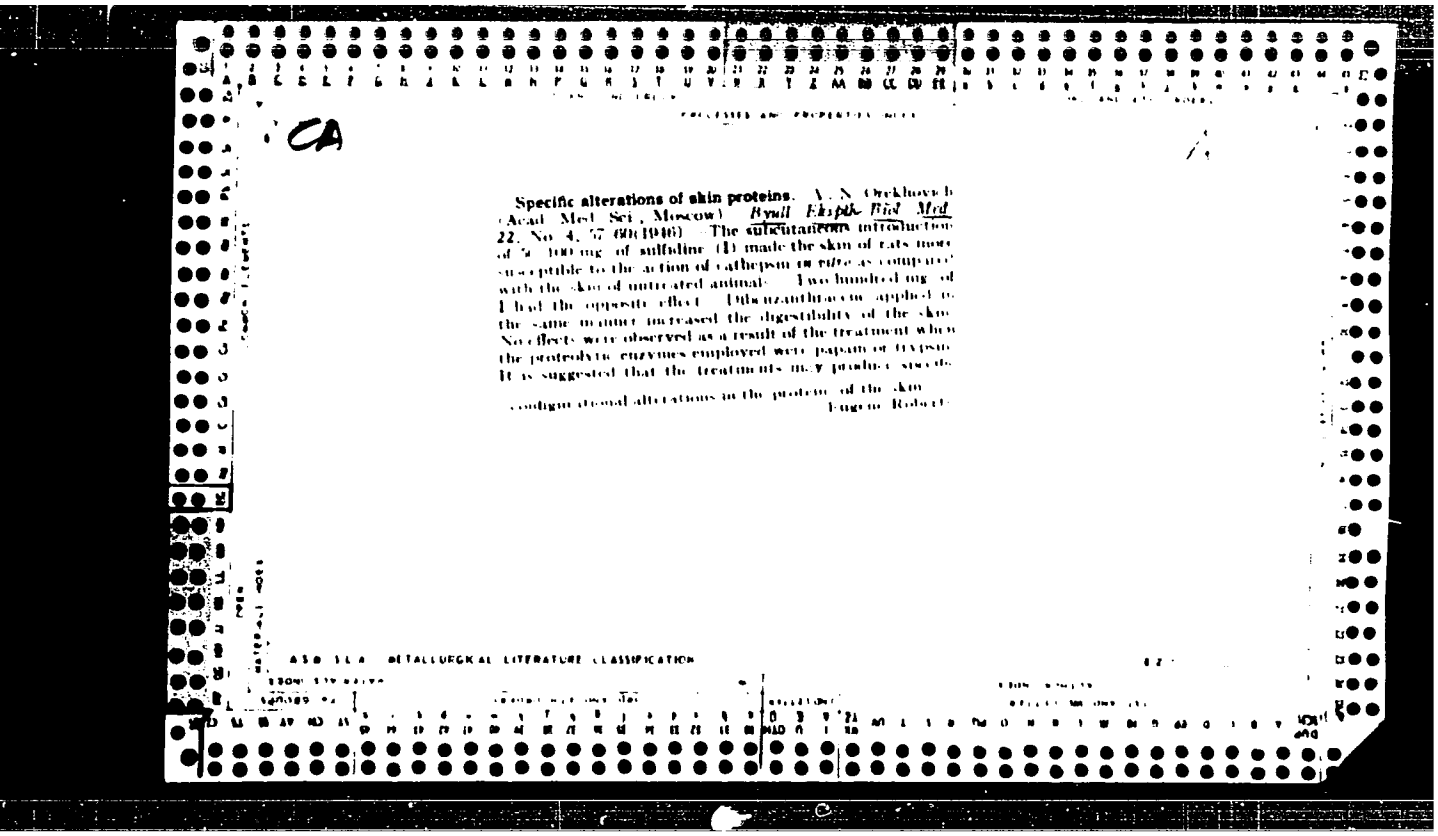
BC

A-4

Proteases and peptidases of liver. V. N. Orekhovich, A. S. Konikova, A. A. Tustanovskii, [illegible] G. [illegible], and N. A. [illegible] (Compt. rend. Acad. Sci. U.R.S.S., 1941, [illegible]).—Cathepsin, prepared [illegible] by a slight modification of the method of Fruton and Bergmann ([illegible], III, 1000), hydrolyses peptides ([illegible] and [illegible]glycine, glycylglycine) at pH 4·1 in [illegible] of cysteine; the action is inhibited by iodoacetate. No hydrolysis occurs at pH 7·8. Glycerol extracts cause hydrolysis in presence and absence of cysteine at pH 7·8 but none at pH 4·1. The results suggest the existence of "acid" and "alkaline" dipeptidases, the alkaline dipeptidase only being sol. in glycerol.

W. McC.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

Specific alterations of skin proteins. A. N. Orekhovich (Acad. Med. Sci., Moscow). *Byull. Eksptl. Biol. Med.* 22, No. 4, 57-60(1946). The subcutaneous introduction of 5–100 mg. of sulfidine (I) made the skin of rats more susceptible to the action of cathepsin *in vitro* as compared with the skin of untreated animals. Two hundred mg. of I had the opposite effect. Dihydrauthracene applied to the same manner increased the digestibility of the skin. No effects were observed as a result of the treatment when the proteolytic enzymes employed were papain or trypsin. It is suggested that the treatments may produce steric configurational alterations in the proteins of the skin.

Eugene Robert

A.S.M. METALLURGICAL LITERATURE CLASSIFICATION

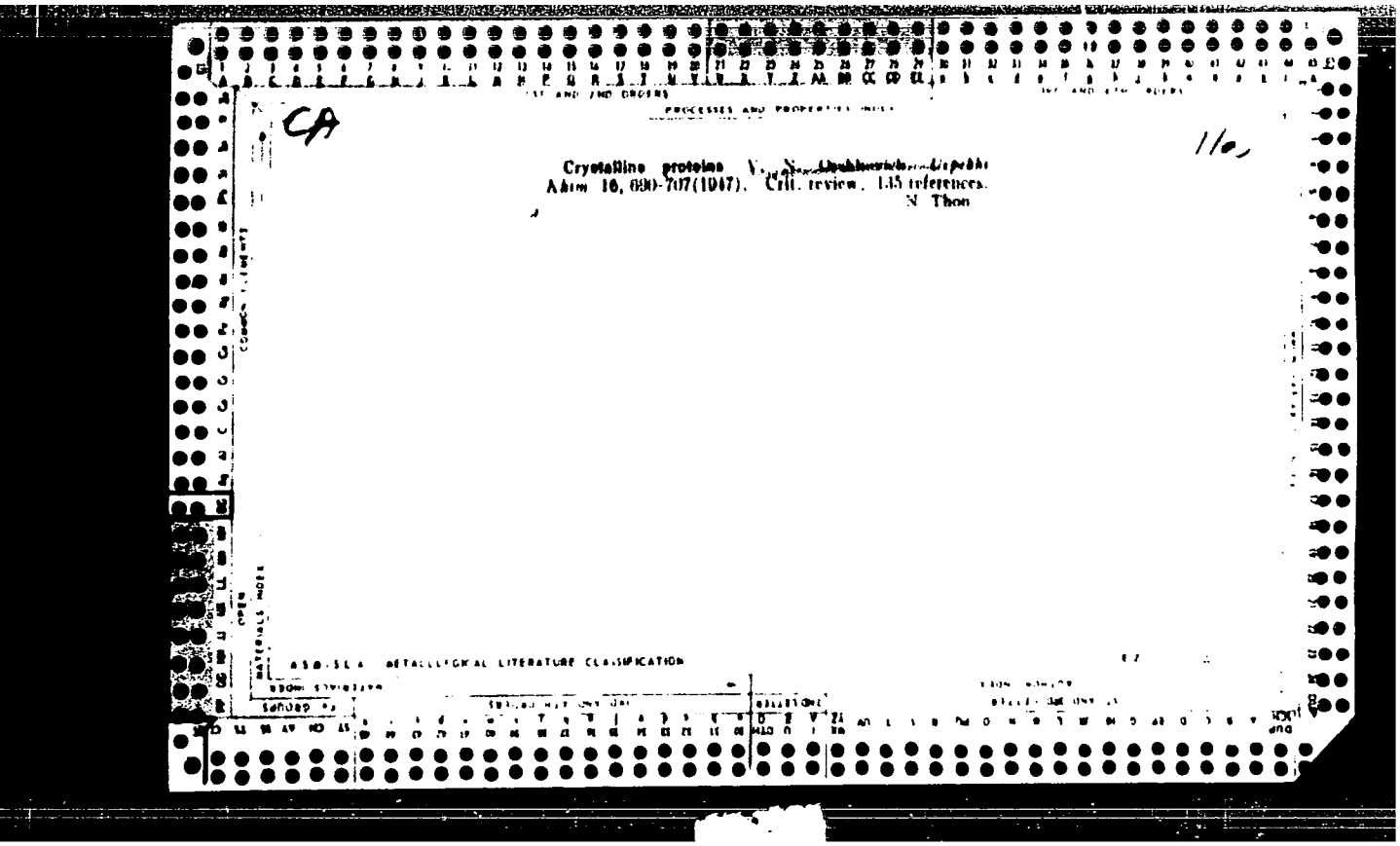
ORESHKOVICH, V.N.

ORESHKOVICH, [illegible], [illegible]SKIY, [illegible], [illegible] K. D., [illegible]

[illegible], 1947

Mbr. Lab. Chemistry of [illegible], [illegible] SSSR, Moscow, 1947

"Pro[illegible] of the [illegible]," [illegible], 1947. [illegible]



Orekhovich, V. N.

From Russian for Dr. W. G. Banfield

Biull. eksp. biol. i med.,
23 (3): 197-198; 1 fig.; 1947

Obtaining Dry Crystals of Pure Proteins
by
V. N. Orekhovich and A. A. Tustanovskii
(From the Lab. of Protein Chemistry (Dir. of Sci.; Prof. V. N. Orekhovich) of the Institute of Biological and Medical Chemistry (Dir.: Acad. Member Ia. O. Parnas), of the Acad. of Med. Sci., USSR, Moscow)
(Article entered editorial office Jan 10, 1947).

OREKHOVICH, V. N.

PA 57T03

USSR/Medicine - Skin Aug 1947
Chemistry - Hydrolysis

"The Fermentative Hydrolysis of Skin Crystalbumin," V. N. Orekhovich, A. A. Tustanovskiy, K. D. Orekhovich, Inst Biol ng Med Chem, Acad Med Sci USSR, Physiol Chem Lab, Acad Sci USSR, 3 pp

"Dok[illegible] Akad Nauk SSSR, Nova-Ser" Vol LVII, No 5

Studies intensity of fermentative hydrolysis of skin crystalbumin with various pH of the media, and gives a diagrammatic representation of its intensity with papain and cathepsin in relation to pH of media. Submitted by Academician Ya. O. Parnas, 10 Jan 1947.

[redacted] 58763

ORLKHOVICH, V. N.

Orekhovich, V. N. "On the transformation of tissue albumins of animals during malignant growth and other pathological processes", Trudy Chetvertoy sessii Akad. med. nauk SSSR, Moscow, 1948, p. 218-22.

SO: U-2888, 12 Feb. 53, (Letopis' Zhurnal 'nykh Statey, No. 2, 1949).

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

11a

The procollagen of hide. V. N. Orekhovich, A. A. Tustanovskii, K. D. Orekhovich, and N. E. Plotnikova (Acad. Med. Sci., Moscow). *Biokhimiya* 13, 55-60 (1948); cf. C. A. 42, 8174.—Procollagen is found widely distributed in the animal kingdom; all vertebrates contain it. Procollagen is present not only in the hide, but also in many other animal tissues and organs. Cryst. procollagen is prepd. thus: Immediately after the animal is killed, the hide is removed, freed from hypodermic tissue and fat, and finely ground. Albumins and globulins are removed by extn. of the paste with 5 vols. of 0.3 M Na_2HPO_4 at 2° for 24-30 hrs. The globulins sep. on the addn. of an equal vol. of a satd. soln. of $(NH_4)_2SO_4$. The filtrate ppts. the albumins after satn. with $(NH_4)_2SO_4$. The paste is washed while on the filter with 1-2 portions of citrate buffer of pH 4.0. Five vols. of citrate buffer of pH 4.0 (based on the wt. of the paste) are then added to the washed paste, and the mixt. is allowed to stand for 24-30 hrs. at 1°. After filtration, a viscous, transparent soln. is obtained, which contains the procollagen. The filtrate is dialyzed against tap water or 0.01 M Na_2HPO_4. Crystals in the form of long needles ppt. after 24 hrs. Anhyd. crystals are obtained by treatment with alc. and ether and drying to const. wt. at 105°. An amorphous prepn. is obtained by adding one vol. of 10% NaCl soln. to the citrate ext. of the hide paste. Rabbit hide contains 4% procollagen (dry-wt. basis). The greatest quantity of procollagen is found in fish skins. Pike perch skins contain 2.5% procollagen (dry protein from moist skin). The ultraviolet absorption spectra of hide procollagen, albumin, globulin, and gelatin were mapped out. Procollagen is rapidly digested by cathepsin and papain, but rather slowly by pepsin and trypsin. H. Priestley

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

OREKOVICH , V. N.

USSR (600)

Review of F. P. Astanin's/ Biochemistry, Biokhimiya, 13: 6, 1948.

BNL Guide, 2: 4, 1949.

USSR/Medicine - Albumin
Medicine - Vertebrates

May 1948

"Extraction of Crystalline Albumin of a New Type (Procollagen) From Various Organs of Vertebrates," V. N. Orekhovich, A. A. Tustanovskiy, N. Yo. Plotnikova, Chem Lab of Albumins, Inst Biol and Med Chem, Acad Med Sci USSR, 2½ pp

"Dok Ak Nauk SSSR" Vol LX, No 5, 837-839

Previous article reported discovery of procollagen, isolation of crystalline procollagen from skin of various vertebrates, and gave a description of some of its properties. Reports results of studies to determine extent of distribution of procollagen in animals, especially extent to which substance is found in animal organs and tissues. Submitted by Academician Ya. D. Parnas 27 Feb 1948.

Evaluation B-33873, 28 Jun 48

68279

CA

Titration method for determining urea and citrulline
V. N. Orekhovich and A. A. Tustanovskii (Inst. Biochem.)
Biokhimiya 14, 444-8(1949); cf. C.A. 43, 8423g and Pearon, C.A. 33, 8229⁶.—A mixt. of all amino acids gives a reddish color with the monoxime of biacetyl (I). The individual amino acids, citrulline (II) and tryptophan, give a yellow color, whereas the other amino acids when tested alone with I give no color. A purple color is developed with I and the two compds. tryptophan and II, or with tryptophan and any other ureide of the type RNHCONH₂. Tryptophan and II in a mixt. of strong H_3PO_4 and $NaNO_3$ give with I a complex diacetyltryptophan ureide, possessing a purple color. In the presence of a given quantity of tryptophan, the ureide content can be calcd., since 1 mol. of tryptophan reacts with 4 mols. of urea, or with 3 mols. of II. The method is applicable to the *determ.* of *urea* in *blood*. As little as 2 γ of II in 1 ml. of soln. can be detd. H. Prestley

THE LAB. OF PROTEIN CHEMISTRY OF THE INST. OF BIOLOGICAL AND MEDICAL SCIENCES, USSR, MOSCOW

ORENKOVICH, V. N.

PA 39/49T65

USSR/Medicine - Liver Mar 49
Medicine - Amino Acids

"Research with C^{13} on Restoring Dicarboxylic Amino Acids in the Liver," A. S. Konikova, V. N. Orekhovich, M. G. Kritsman, S. Ya. Davydova, A. S. Khokhlov, M. G. Kukavadze, B. V. Ottesen, M. L. Meshilkov, L. L. Gol'din, Inst Biol and Med Chem, Acad Med Sci USSR, 3 pp

"Dok/At Nauk SSSR" Vol LXV, No 3

Using C^{13}, investigated the restoration of amino-carboxylic acids of proteins in a normal and regenerated liver, and in sections of the liver adjoining the regenerate and removed from it. Concludes that protein exchange in regenerated tissue is characterized neither by an increased, in comparison with exchange in normal tissue, formation speed of dicarboxylic amino acids, nor by a more intensive inclusion of them in the protein. Submitted by Acad A. I. Oparin, 26 Jan 49.

39/49T65

OREKHOVICH, V. N. and KONIKOVA, A. S.

"Studies of the Restoration of Amino-Dicarbonic Acids in the Blood with the Use of Heavy Carbon C13," Dokl. AN SSSR, 66, No.5, 1949.

Inst. Biol. and Med. Sci., AMS USSR

OREKHOVICH, V. N.

PA 54/49T91

USSR/Medicine - Ureides Jul 49
Medicine - Biochemistry

"Micromethod of Determining Ureides (Citrulline, etc. and Tryptophan in Whole Albumins," V. N. Orekhovich, A. A. Tustanovskiy, Inst of Biol and Med Chem, Acad Med Sci USSR, 4 pp

"Dok Ak Nauk SSSR" Vol LXVII, No 2

On the basis of coloring, worked out titrimetric methods to determine urea, citrulline and other ureides in organic tissues and fluids and a micro method to determine tryptophan in whole albumins. Methods were successful in 26 out of 30 examinations of animal, plant, and bacterial preparations of albumn. Submitted by Acad A. D. Speranskiy 5 May 49.

54/49T91

SLEMKEVICH, I. N. and B[illegible]MAN, Z. .

"On the [illegible] of Fibrosis in Strumas, Review", [illegible] imii, [illegible]. II, [illegible] 238-245, 1957.

of aromatic and S-contg. amino acids is very small. The procollagen content of the skin of guinea pigs decreases with age. In the skin of scorbutic animals the procollagen content is only half that of normal animals. C. P. H.

CA

114

The rate of renewal of proteins of various tissues and organs. V. N. Orekhovich, A. S. Koukova, K. D. Orekhovich, and N. N. Pikhlerit. *Doklady Akad. Nauk S.S.S.R.* 71, 105-7 (1950). Detn. of D introduced into the various tissues of rats after several days of administration of D_2O to bring the av. body-fluid concn. of D_2O to 17% showed (in descending order) the uptake of D to be highest in the liver, followed by intestines, spleen, kidney, stomach, heart, lungs, and brain. The series of the ease of loss of D is: liver, kidneys, intestines, stomach, lungs, spleen, heart, and brain. The following percentage renewal series, based on the extent of D exchange, in various tissues is (in descending order): blood proteins (total), blood globulins, liver globulins, skin globulins, skin collagen, skin procollagen, osseon, muscle proteins, and myogen. The renewal rate is considerably lower in rats which had just given birth to young than in normal adult animals when skin and muscle proteins are considered; the values for internal organs remain normal. The newborn, however, have a rather uniform rate of renewal in all tissues and this is substantially above that of the mother.

G. M. Kosolapoff

OREKHOVICH, V. N., LEVYANT, M. I., PLOTNIKOVA, N. E.

"Amino Acid Composition of Protein Preparations from Some Plant and Animal Proteins after Treatment with Alkali," Dokl. AN SSSR, 80, 1951. pp. 649-52.

OREKHOVICH, Vasiliy Nikolayevich

[Procollagens, their chemical composition, properties, and biological role] Prokollageny, ikh khimicheskii sostav, svoistva i biologicheskaia rol'. Moskva, Izd-vo Akad.med. nauk SSSR, 1952. 20 p. (MIRA 13:12)
(PROCOLLAGEN)

[redacted]

[redacted]

SO: Monthly List of Russian Accessions, [redacted], May 1963

OREKHOVICH, V. N.

USSR/Medicine - Antibiotics Jan 52

"The Antibiotic Levomycetin," V. N. Orekhovich, Corr Mem, Acad Med Sci USSR

"Nauka i Zhizn'" Vol XIX, No 1, p 30

Levomycetin (discovered in 1947 and also known as chloromycetin or chlorocamphenicol) has been produced industrially in the USSR since workers at the Inst of Biol and Med Chem, Acad Med Sci USSR, developed in 1949 a synthesis for that purpose. It has been found particularly effective in typhoid and paratyphoid (there is 100% recovery

203T87

USSR/Medicine - Antibiotics (Contd) Jan 52

25-30 g. in acute cases 50-60 g per treatment must be used), typhus, (5-6 g per treatment, rarely 10-12 g), brucellosis (15-20 g per treatment), and tularemia.

203T87

CREKKOVICH, V. M.

AMINO ACIDS.

Amino acids. V. M. Crekkovich. [illegible]

9. Monthly List of Russian Accessions. Library of Congress, [illegible] 195[illegible]. Uncl.

TUSTANOVSKIY, A.A. (Moscow); ORLOVSKAYA, G.V. (Moscow); OREKHOVICH, V.N., chlen-korrespondent Akademii meditsinskikh nauk SSSR, direktor.

Specificity of argyrophil protein structures of connective tissue. Arkh. pat. 15 no.3:32-41 My-Je '53. (MLRA 6:11)

1. Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR. 2. Laboratoriya chlena-korrespondenta Akademii meditsinskikh nauk SSSR A.I.Strukova (for Tustanovskiy and Orlovskaya).
(Connective tissues) (Proteins)

ORekhovich, V.N.; Kurokhtina, T.P.; Buyanova, N.D.

On the "inclusion" of tagged amino acids into blood plasma albumin. Biokhimiia 18 no.6:706-708 N-D '53. (MLRA 6:12)

1. Institut biologicheskoy i meditsinskoy khimii AMN SSSR. Moscow.
(Amino acids) (Blood--Plasma) (Tracers (Biology))

OREKHOVICH, V.N., chlen-korrespondent.

Transformations of albumin in the organism. Nauka i zhizn' 20 no.5:13-16 My '53. (MLRA 6:6)

1. Akademiya meditsinskikh nauk SSSR. (Albumin)

OREKHOVICH, V.N.

Therapeutic use of levomycetin. Klin. med., Moskva 31 no.6:8-14 June 1953. (CIML 25:1)

1. Professor, Corresponding Member of the Academy of Medical Sciences.
2. Moscow.

OREKHOVICH, V.N.

Present concepts of structure of proteins. Usp. sovrem. biol. 35 no.3: 425-443 May-June 1953. (CLML 25:1)

1. Moscow.

OREKHOVICH, V. N.

Chemical Abst.
Vol. 48
Apr. 10, 1954
Biological Chemistry

Current ideas of pro[illegible]n structure V. N. Orekhovich. *Uspekhi Sovremennoi Biol.* 36, 127–42(1953). — A review with 15 references. Julian P. Smith

OREKHOVICH, V. N.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Biological Chemistry

(4)

Content of transpeptidases in various organs of mammals. V. L. Kaganova and V. N. Orekhovich (Inst. Biol. Med. Chem., Acad. Med. Sci. U.S.S.R., Moscow). *Doklady Akad. Nauk S.S.S.R.* 93, 875–8(1953).—The transpeptidase reaction was studied by using as donor glutathione, and as acceptor phenylalanine or leucine, and the incubated tissue systems were examd. by paper chromatography. Expts. were made with kidneys and liver of rats, liver of guinea pigs, and internal-secretion glands of cattle, as well as all the various organs of the latter group. Although activity was found to be widespread, the most active transpeptidase activity was located in the pancreas of a bull and in kidneys of rats and guinea pigs. Transpeptidase action between glutathione and phenylalanine gave a new peptide, identified as γ-glutamylphenylalanine, whose hydrolysis gave the component acids (Hanes, *et al.*, *C.A.* 46, 5828*b*). Generally transpeptidase activity was least in cases in which glutathione hydrolysis was slow. Typical chromatograms are shown. G. M. Kosolapoff

OREKHOVICH, V. N.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

Name	Title of Work	Nominated by
Orekhovich, V. N.	"Problems, Data Chemical Compounds, Properties, and Chemical Role"	[illegible]

SO: W-30604, 7 July 1954

OREKHOVICH, M. N.

USSR.

The so-called protoacids and anticomplexes. V. N. Orekhovich, M. I. Levyant, and N. E. Plotnikova (Inst. Biol. and Med. Chem., Acad. Med. Sci. U.S.S.R., Moscow). *Trudy Vsesoyuz. Obshchestva Fiziologov, Biokhimikov i Farmakologov, Akad. Nauk S.S.S.R.* 2, 160–5(1954).—A few expts. are presented which render valueless the work of S. S. Perov and his concept of the total identity of all proteins, as stated in 1838 by Mulder. B. S. Levine

OREKHOVICH, V.N.

[redacted]

[Progress in biological chemistry] Uspekhi biologicheskoi khimii. Moskva, Medgiz, vol. 4, 1954. (MIRA 8:3)
(Biochemistry)

ORKHOVICH, V.N.

Some results of the discussion on G.M.Bosh'ian's concepts. Zhur. mikrobiol. epid. i immun. no.10:102-107 O '54. (MLRA 8:1)
(MICROBIOLOGY
crystallization of microorganisms)

Orekhovich, K. N.

6308. Separation of the α- and β-crystallines. V. N. Orekhovich, K. F. Firfanova, and M. P. Chernikov. *Biokhimiya*, 1954, 19, [illegible]; *Referat. Zh. biol. Khim.*, 1955, Abstr. No. 13167.—The proteins were obtained from cattle cryst. lens, mainly young cattle. The sol. proteins were fractionated with $(NH_4)_2SO_4$. The homogeneity of the resultant protein fractions was tested by electrophoresis. As the $(NH_4)_2SO_4$ satn. increased (0·3; 0·35; 0·4), the α-crystalline (I) content in the ppt. decreased and the β-crystalline (II) content increased. At 0·6 satn. the [illegible] in the ppt. was almost pure. Pure I was obtained by three methods: (a) pptn. from the soln. by $(NH_4)_2SO_4$ up to 0·4 satn. and subsequent repeated pptn.; (b) the protein ppt. from 0·4 satn. was dissolved in water and the soln. was brought to pH 4·5—4·7 by 0·5% H_3PO_4 and was pptd. by $(NH_4)_2SO_4$ at 0·3 satn.; (c) by acidifying the protein soln. with 0·5% H_3PO_4 to pH 5·2. II was obtained from the filtrate, after the protein ppt. resulting from the 0·4 satn. with $(NH_4)_2SO_4$ was removed, by adding the latter to the filtrate up to 0·6 satn. I was removed by re-pptn. and the salts by dialysis. Electrophoretic examination of the mixture of denatured I and II (the "general" cryst. protein) showed only one component. This can be explained by aggregation which leads to the formation of homogeneous "mixed" protein fractions. The great instability of the cryst. soln. particularly that of I, towards denaturing agents is stressed. According to electrophoretic analysis the acidification of the protein soln. to pH 5·2 modifies some of the proportion of I. It is assumed that, in the presence of II, I becomes more stable in regard to denaturing agents. It is stressed that in a weak alkaline solution I is less stable and more mobile in the electric field. Under the same conditions the mobility

OREKHOVICH, V.N.

"Chemistry of antibiotic substances." M.M.Shemiakin, A.S.Khokhlov. Reviewed by V.N.Orekhovich. Biokhimiia 19 no.4:509-510 Jl-Ag '54. (MLRA 7:9)
(Antibiotics) (Shemiakin, M.M.) (Khokhlov, A.S.)

OREKHOVICH, V.N.

The incorporation of labeled amino acids into the proteins of the developing hen eggs. V. N. Orekhovich, M. I. Levyant, and T. P. Levchuk-[redacted]ol. and Med. Chem., Acad. Med. Sci. U.S.S.R., Moscow). *Biokhimiya* 19, 610-15(1954).—The incorporation of labeled amino acids into the proteins of the white and yolk of the hen egg takes place only at the time when these proteins are being newly formed. During the process of incubation of the fertilized egg and the development of the embryo no renewal of the proteins of the white and yolk of the egg takes place. No dynamic metabolic exchange exists between the amino acids of the proteins of the egg white, of the embryo disk, and of the egg yolk. It did not appear probable that the development of cellular elements took place at the direct expense of the proteins of either the white or the yolk of the egg.

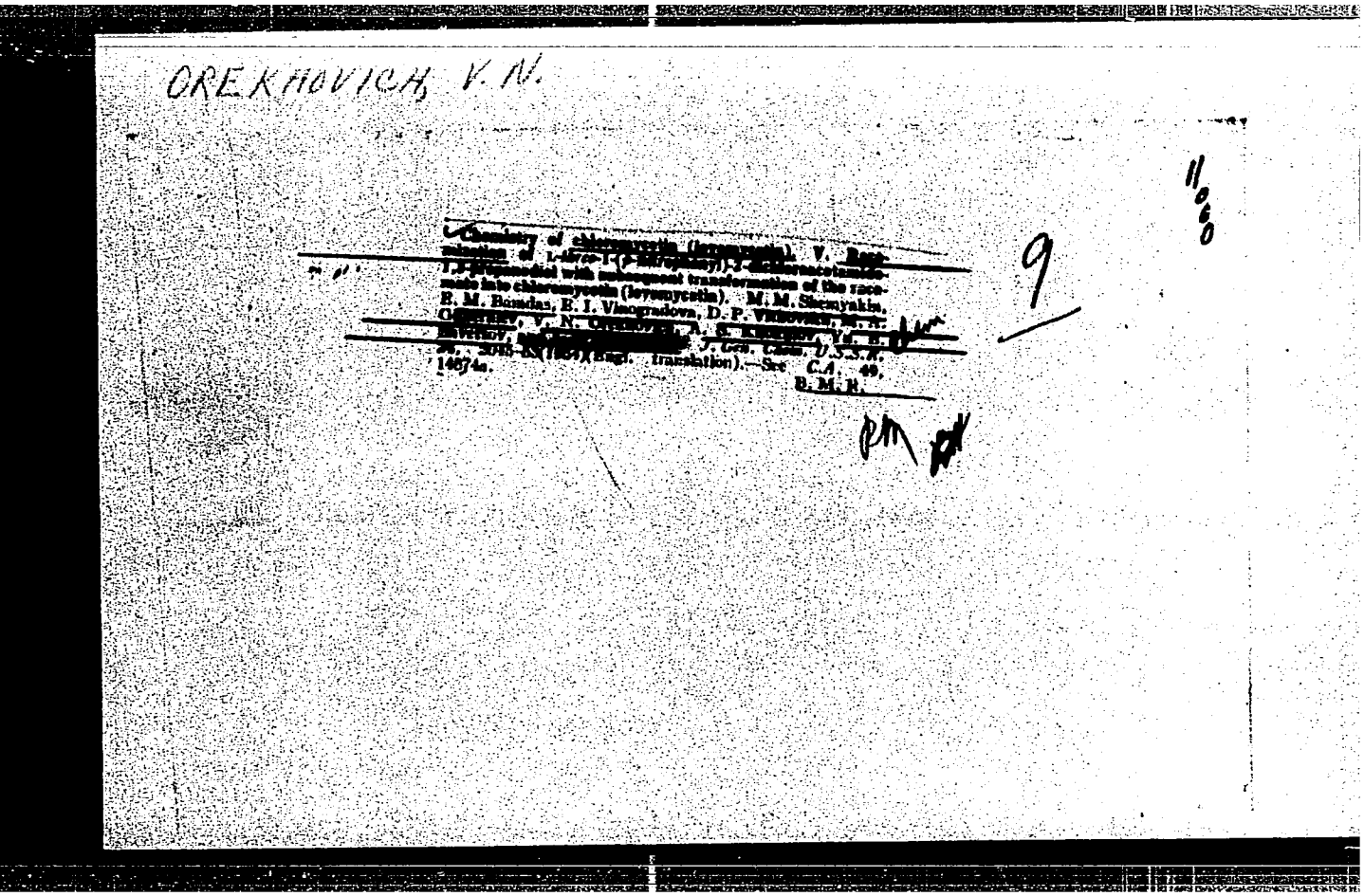
B. S. Levine

—OREKHOVICH, V.N.

USSR.

The hydrolysis of denatured proteins by pepsin, trypsin, and chymotrypsin. L. A. Lokshina and V. N. Orekhovich (Inst. Biol. and Med. Chem., Acad. Med. Sci. U.S.S.R., Moscow). *Biokhimiya* 19, 721–9(1954).—Pepsin, trypsin, and chymotrypsin hydrolyze procollagen, pepsin, egg and serum albumins, and sturine by splitting the peptide bonds formed by the NH_2 group of the following amino acids: aspartic and glutamic acids, serine, threonine, glycine, alanine, valine, leucine, and arginine. This points to the fact that these proteases have a broader enzymic specificity than has been previously assumed. Pepsin, trypsin, and chymotrypsin hydrolyze the peptide bonds formed by the NH_2 group of the same amino acids in practically all the proteins studied. It is assumed that the specificity of the enzymes studied is the same in relation to the substrate component which takes part in the hydrolysis of the NH_2-group bond.

B. S. L.



OREKHOVICH, V. N.

Chemistry of chloramycetin (levomycetin). V. Resolution of L-threo-1-(p-nitrophenyl)-2-dichloroacetamido-propanediol-1,3 with subsequent transformation of the racemate into chloramycetin (levomycetin). M. M. Shemyakin, R. M. Bondas, E. I. Vinogradova, D. P. Vitkovskaya, N. A. [illegible], Yu. B. [illegible], J. Gen. Chem. U.S.S.R. 20, 2018-24(1950)(Engl. translation).—See C.A. 49, 14874a.

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OREKHOVICH, V.N.

SHEMYAKIN, M.M.; BAMDAS, E.M.; VINOGRADOVA, Ye.I.; GUBERNIYEV, M.A.; OREKHOVICH, V.N.; KHOKHLOV, A.S.; SHVETSOV, Yu.B.; SHCHUKINA, L.A.

Research in the chemistry of chloromycetin (levomycetin). Racemization of *l*-threo-1-(*p*-nitrophenyl)-2-dichloroacetylamino-1,3-propanediol. Dokl.AN SSSR 94 no.2:257-259 Ja '54. (MLRA 7:1)

1. Chlen korrespondent Akademii nauk SSSR (for Shemyakin). 2. Deystvitel'nyy chlen AMN SSSR (for Orekhovich). 3. Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR. (Racemization) (Propanediol)

OREKHOVICH, V. N.

USSR/Biochemistry

Card 1/1

Authors : Kazanova, I. L. and Orekhovich, V. N., Active Member of the Acad. of Med. Scs. of the USSR

Title : On synthesis of peptides by chymotrypsin

Periodical : Dokl AN SSSR, 95, 6, 1259 - 1262, 21 Apr 1954

Abstract : The article describes experiments in the synthesis of peptide bonds and the increase of the peptide chain. The experiments were performed by the method of proteolytic ferments of various origins. Ethyl ether of tyrosine was used as a substrate in the experiment and chymotrypsin as a ferment.

Institution : Inst. of Biolog. Medic. Chem. of the Acad. of Medic. Scs. of the USSR

Submitted : 25 Jan 1954

OREKHOVICH, V. N.

"Investigation of the Inclusion of Amino Acids into Proteins in Vivo and in Vitro," a paper presented at the Atoms for Peace Conference, Geneva, Switzerland, 1955

OREKHOVICH, V.N.

[Processes involved in the inclusion of amino acids into proteins in vivo and in vitro] Issledovanie protsessov vkliuchoniia aminokislot v belki in vivo i in vitro. Moskva, 1955. 9 p.
(MIRA 14:6)

(Proteins) (Amino acids)

OREKHOVICH, V.N.

[Conversion of procollagen into collagen; reports and papers of the Third International Congress of Biochemistry, Brussels, 1-6 August, 1955] O prevrashchenii prokollagena v kollagen; soobshcheniia i doklady na III Mezhdunarodnom biokhimicheskom kongresse, Briussel', 1-6 avgusta 1955 g. Moskva, Izd-vo Akad. nauk SSSR, 1955. 17 p.
(PROCOLLAGEN) (COLLAGEN) (MIRA 11:6)

IGNAT'YEV, A., red.; OREKHOVICH, V.N., red.; POPRYADUKHIN, K.A., tekhn.red.

[Works on the use of radioactive isotopes in medicine] Trudy po primeneniiu radioaktivnykh izotopov v meditsine. Izd.2. Moskva, Gos.izd-vo med.lit-ry, 1955. 263 p.
(MIRA 14:1)

(RADIOISOTOPES--THERAPEUTIC USE)

Orekhovich, Ye. V. N.

The transformation of procollagens into collagens. V. N. Orekhovich (Acad. Med. Sci., U.S.S.R., Moscow). *Compt. rend. Acad. sci., U.R.S.S.*, 1955, 50(in Russian and French); cf. *C.A.* 48, 2792c.—New work indicates that albumins are the biol. predecessors of collagens in the organism. Glycine-C^{14} (I) given to healthy guinea pigs 1st appears in the albumins, then in the procollagens, and later in the collagens of the skin. In beriberic animals, I is combined into the albumins, but the conversion of the latter, first to procollagens then to collagens, is completely arrested. W. C. Tobie

ORЕKHOVICH, V. N.

CN

Molecular weight and the degree of asymmetry of procollagen. V. N. Orekhovich and V. O. Shpikiter (Inst. Biol. and Med. Chem., Acad. Med. Sci. U.S.S.R., Moscow). *Biokhimiya* 20, 138-43(1955); cf. *C.A.* 49, 12556e.—A critical discussion was presented of the methods and formulas usually employed in the detn. of S (sedimentation const.), M (mol. wt.), f (molar coeff. of viscosity), f_0 (molar coeff. of viscosity for spherical particles), and the degree of asymmetry from the ratio f/f_0 and the ratio of the semiaxes b/a. White rats were used and procollagen was obtained by a previously described method (V. N. Orekhovich, *Prokollageny ikh Khim. Sostav, Svoistva i Biol. Rol'* (Moscow)(1952)). The needle-shaped crystals pptd. were thoroughly washed and stored in a moist condition. For use in expts. the protein was dissolved in 0.1*M* citrate buffer of pH 3.6. Total N was then detd. H_2O soln. of $CaCl_2$ and urea was added so that a procollagen soln. in 0.05*M* citrate buffer of pH 3.0 in 1% $CaCl_2$ soln. and another in 0.5*M* urea were obtained. Thymol was added as a preservative. In the case of the diffusion expts. solns. were dialyzed against the solvent for 24-30 hrs. in the cold. Sedimentation studies were made with the use of a Svedberg ultracentrifuge at 61,000 r.p.m.; in the summer some expts. were performed at a speed of 50,000 r.p.m. and at a temp. of approx 24°. Sedimentation diagrams were prepd. Results indicated that the procollagen sediment represented a single component and that the single peak at approx. 0.03% concn. is an indication of the monodisperse nature of the protein. By extrapolation to zero protein concn. in expts. with 0.05*M* citrate buffer, pH 3.6, and with 1% $CaCl_2$, S was 8.05×10^{-13}; in the case of 0.5*M* urea soln., S was 3.25×10^{-13}. Diffusion

expts. by the method of Lamm were continued for 4-6 days at approx. 23° (approx. 0.003° error). The diffusion const. of procollagen at a concn. of 0.02% in 1% $CaCl_2$ (other conditions being the same), detd. with the aid of a polarizing interferometer on the Tsvetkov app., was $D = 0.35 \times 10^{-7}$ sq. cm./sec. Extrapolation to zero protein concn. yielded the same D value in 1% $CaCl_2$ and $D = 0.4 \times 10^{-7}$ sq. cm./sec. in 0.5*M* urea. Viscosity detns. were made with the aid of a U-shaped capillary viscosimeter (diam. 0.03 cm., length approx. 40 cm., vol. 0.6 cc.) at 20° and at different flow rates. For procollagen in 0.05*M* citrate buffer and for $CaCl_2$ 1% and pH 3.6, [η] was 17.5; with 0.5*M* urea [η] was 18.8. Mol. wt. detns. were calcd. for M_{SD} with the aid of formulas for S and D and for $M_S[\eta]$ with the aid of formulas for S and [η], taking V (partial specific vol.) = 0.72 and formulas $M = SRT/[D(1 - V\rho)]$ (1) and $S_0[\eta]^{1/3}/M^{2/3} = \phi^{1/3}P^{-1}(1 - V\rho)/\eta N$ (2). The av. mol. wt. for procollagen thus obtained was 680,500. In detg. the degree of asymmetry and the size of the procollagen particles the following discussion is presented: according to formula (1) and Stokes equation for f_0, f/f_0 is 9.3. If it is assumed that the shape of part of the procollagen is an elongated ellipsoid, then in the case with the f/f_0, b/a = 1/525, i.e., the length of the particles is 500 times their diam. With the formula, particle size = MV/N = $M\pi r^2 l/N$ the size of the procollagen particles are found to be 1.28 mμ in diam. and 675.5 mμ long. B. S. Levine

(1)

ORE

USSR/General Biology - Individual Development. B-3

Abs Jour : Ref Zhur - Biologiya. No , 10 April 1957, 25885

Author : Orekhovich, V.N., Levchuk, T.P., Levyant, M.I.
Inst :
Title : The Incorporation of Amino Acids in the Albumen if an Unfertilized Hen's Egg.

Orig Pub : Biokhimiya, 1955, 20. No 6, 714-717

Abst : Tracer amino acids (thyrozine-C^{14}, methionine-S^{35}, and lysine C^{14}) were introduced into the white and yoke of an unfertilized egg of a hen of the Leghorn breed, 10 to 12 hours after it was layed. The incorporation of these amino acids in the undeveloping embryonic disk takes place quite slowly (4 - 25 imp/min per 10 mg of albumen after 10 to 20 hours). The albumen of the capsule and of the yoek fail to take up amino acids altogether. These data suggest the absence of synthesis and "renewal" processes in the capsule and yoke portions of the unfertilized egg (as had been shown previously in the case of the fertilized egg).

Card 1/2

CHEKHOVICH, V

KOVRIGINA, M.; NESMEYANOV, A.; BAKULEV, I.; KOCHERGIN, I.; OPARIN, A.; ANICHKOV, N.; NESTEROV, A.; KROTKOV, F.; CHERNOGOVSKIY, V.; TIMAKOV, V.; SEVERIN, S.; HUDNEY, G.; SERGIYEV, P.; DOVYDOVSKIY, I.; CHEKHOVICH, V.; TALYZIN, F.; STRUKOV, A.; MIGUNOV, B.; SKVORTSOV, M.

A.I. Abrikosov; obituary. Vest. AN SSSR 25 no.5:65-66 My '55. (Abrikosov, Aleksei Ivanovich, 1875-1955) (MLRA 8:7)

Orekhovich V. N.

Physicochemical characteristics of the soluble proteins of the eye lens. V. N. Orekhovich, K. P. Firfarova, and V. O. Shpikiter (Inst. Biol. Med. Chem., Acad. Med. Sci. U.S.S.R., Moscow). *Ukrain. Biokhim. Zhur.* 27, 355-63 (1955)(In Russian).—Lenses of eyes of cattle and other animals were comminuted in a homogenizer in a ratio of 50 lenses per 150-200 ml. of distd. H_2O. The homogenate was allowed to stand for 60 min. at 5°, centrifuged twice, and the insol. protein was removed. Protein fractionation was as follows: to the clear lens ext. $(NH_4)_2SO_4$ was added to 0.3 satn. The first ppt. was dissolved in dist. H_2O and reppid. twice. To the first supernatant $(NH_4)_2SO_4$ up to 0.45 satn. was then added, which completely ppid. the α-crystalline. The second ppt. was dissolved in H_2O and reppid. twice with 0.3 satn. of $(NH_4)_2SO_4$. $(NH_4)_2SO_4$ was then added to the original supernatant to 0.5 satn. The third ppts. isolated β-crystalline and γ'-crystalline. $(NH_4)_2SO_4$ was then added to the original supernatant to 0.6 satn. The fourth ppt. contained the remainder of β- and γ'-crystalline. $(NH_4)_2SO_4$ was then added to complete satn. The fifth ppt. contained the remainder of the proteins, leaving a protein-free supernatant fluid. Electrophoretic sepn. was done by means of Tiselius app. in a buffer of pH 7.9, ionic strength 0.07 at 6.3 v./cm.; gradient and +2°. Differential centrifugation was accomplished with a Svedberg ultracentrifuge. Diffusion index and specific vol. detns. were also made. In the lenses of many animals are present 5-7 sol. protein components which can be well differentiated electrophoretically. Ppts. with $(NH_4)_2SO_4$ failed to yield homogeneous components. The α-crystalline fraction obtained at 0.3 $(NH_4)_2SO_4$ satn. contains β-crystalline. Attempts to remove same by repeated ppts. resulted in a partial denaturation of α-crystalline. Ultrafiltration of electrophoretically obtained α-crystalline produced results pointing to the monodisperse nature of that protein. Its sedimentation const. ($S = 16.7 \times 10^{-13}$) and diffusion constant ($D = 1.85 \times 10^{-7}$ cm.²/sec.) make possible the detn. of the mol. wt. of α-crystalline (800,000) as well as the degree of asymmetry (1/17). In the case of guinea pigs, rats, rabbits, and dogs the α-crystalline fraction of the lens contained another component which had a lower electrophoretic mobility. In the β-crystalline of the lens of cattle electrophoretic analysis showed the presence of 2 components. In all other animals the presence of 2 such components was even more clearly in evidence. Ultracentrifugation studies indicated the presence in fraction β-crystalline of 2 components; a lighter one, which corresponds to the component of greater electrophoretic mobility (β') having a mol. wt. of 45,000, and a heavier component, corresponding to the component of lower electrophoretic mobility (β") having a mol. wt. of 100,000. In the fraction γ-crystalline of the lens of cattle electrophoresis disclosed 3 components as indicated by the ascending part of the graph. Generally, the amt. of γ-crystalline in the lens of the eye of cattle was lower than that of other animals. A β-crystalline-free γ-fraction was not obtained by fractional ppts. It was obtained electrophoretically and in only small amts. Ultracentrifugation studies of 0.5 $(NH_4)_2SO_4$-satd. fraction gave data regarding a component of γ-fraction, ich was denoted as γ'-crystalline, having a mol. wt. of 000.

B. S. Levine

(2)

OREKHOVICH, V. N.

USSR/Biology - Biochemistry

Card 1/1 Pub. 22 - 35/49

Authors : Orekhovich, V. N., Act. Memb., Acad. of Med. Sc., USSR; and Shpikiter, V. O.

Title : Study of certain properties of denatured procollagen by means of an ultracentrifuge

Periodical : Dok. AN SSSR 101/3, 529-530, Mar 21, 1955

Abstract : It was determined on the basis of experimental works that native procollagen represents a complex of two or more albumins components. A study of procollagen properties, by means of the Svedberg ultracentrifuge, showed that the procollagen components have relatively weak bonds and unusually high viscosity whereas the products of denatured procollagen have a very low viscosity. Three references: 2 USSR and 1 English (1940-1952). Graphs.

Institution : Acad. of Med. Sc., USSR, Inst. of Biol. and Med. Chemistry

Submitted : November 25, 1954

LEVCHUK, Taisiya Petrovna; LEVYANT, Mira Izrailevna; OKEKHOVICH, Vasiliy Nikolaevyvich; STAROSTENKOVA, M.M., redaktor; GUNIN, M.I., tekhnicheskiy redaktor

[Radioactive isotopes and their application to biochemistry and medicine] Radioaktivnye izotopy i ikh primenenie v biokhimii i meditsine. Moskva, Izd-vo "Znanie," 1956. 30 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.3, no.50) (MLRA 10:1)
(RADIOISOTOPES)

OBUKHOVICH, V.N.

International symposium on the chemistry of connective tissue.
Vop.med.khim. 2 no.6:462-464 N-D '56. (MLRA 10:3)
(CONNECTIVE TISSUES) (PHYSIOLOGICAL CHEMISTRY)

ORBELIKHOVICH, V.N., professor.

Chemical characteristics, nature, and metabolism of proteins.
Priroda 45 no.5:35-40 My '56. (MLRA 9:8)
(Proteins)

OREKHOVICH, V.N.

4

Terminal amino acids in pepsinogen. V. N. Orekhovich, L. A. Lokshina, V. A. Mant'ev, and O. V. Troitskaya. *Doklady Akad. Nauk S.S.S.R.* 110, 1041-3(1956).—Treatment of the protein pepsinogen (*cf.* Herriott, *C.A.* 32, 7007[2]) with 2,4-dinitrofluorobenzene and hydrolysis with 5.7*N* HCl at 110° indicated that leucine is the terminal amino acid with *N* termination. Incubation of the protein with carboxypeptidase in the presence of (iso-PrO)$_2$POF at pH 7.8 ($NaHCO_3$) and isolation (chromatographic) of the amino acids after treatment with dinitrofluorobenzene indicated that the enzyme cleaves in a short reaction time only one amino acid, alanine, while longer treatment also yields valine. These results agree with those of Herriott (*Mechanism of Enzyme Action*, 1954, p. 24). Electrophoresis of pepsinogen in phosphate buffer shows 1 peak at pH 6.9 and 7.6 at ionic strength of 0.2; with lower ionic strength of the soln. this peak is cleaved into two and after 5–6 hrs. 4 ascending components are detectable; the same occurred in borate buffer at pH 8.7 with ionic strength 0.02. The proteolytic activity of the components was similar; hence pepsinogen is not a homogeneous protein which yields pepsins of comparable activities.

G. M. Kosolapoff

Inst. Biol. & Med. Chem., AMS USSR

OREKHOVICH, V. N.

Nature of transpeptidation enzymes. I. L. Kagantova and V. N. Orekhovich. *Doklady Akad. Nauk S.S.S.R.* 111, 1358-60 (1956).—Enzyme exts. taken from kidney and liver of guinea pig or rat, or from pig kidney can cleave the Et ester of tyrosine; cathepsin C does not attack this ester.—Along with hydrolysis of the ester, the substrates under test undergo transpeptidation as shown by chromatography and end-group detn. in the newly formed peptides; this took place during incubation of Et tyrosine ester with glycylglycine, glycyltyrosine, leucylglycine, as substrates. Purified cathepsin C and tissue esterase do not possess transpeptidase activity. G. M. Kosolapoff

Orekhovich, V. N.

Molecular weights of pepsinogen and pepsin. V. N. Orekhovich, V. O. Shpikiter, and V. I. Petrova. *Doklady Akad. Nauk S.S.S.R.* 111, 401-5(1956).—The centrifugal sedimentation method gave a sedimentation const. of 3.6×10^{-13} sec. for pepsinogen and 3.25×10^{-13} sec. for pepsin (cf. Philpot and Eriksson, *C.A.* 38, 1725[4]; Steinhardt, *C.A.* 32, 5430[8]). Diffusion in a Lamm cell gave diffusion consts., resp., of 7.54×10^{-7} sq. cm./sec. and 8.7×10^{-7} (cf. Polson, *C.A.* 33, 6084[4]; Northrop, *C.A.* 24, 5318). Examn. of the substances in respect to widening of sedimentation curves (cf. Williams, *et al.*, *C.A.* 46, 6884[b]) showed their individual homogeneity. The specific vols. of the 2 substances were detd. pycnometrically, obtaining 0.725 and 0.725, resp. (cf. Polson, *C.A.* 33, 6084[4]). Application of Svedberg formula gave mol. wts. of 42,240 and 33,900, resp., for pepsinogen and pepsin. The axis ratio b/a was calcd. as 4.7 and 4.0, resp., indicative of cleavage of a fragment during activation of pepsinogen and conversion to pepsin. C. M. Kosolapoff

Chem Mic

...KOVICH, V. N. and ... ..., V. ...

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...aper submitted to the Conference on ...dvances in ... ...esearch, Univ. ...f Cambridge, xxxxxx, ...ngland, ...-... July 1957

Translation - ... ...-3... ..., 11 Feb 58

Inst. of Biological and ...edical Che...istry, ...cad. ...ed. ...ci. U...R, ...

APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0012381

[illegible]RSKHOVICH, V.N.; PAVLIKHINA, L.V.

The transformation of procollagen into collagen [with summary in English]. Vop.med.khim. 3 no.3:195-201 My-Je '57. (MLRA 10:8)

1. Institut biologicheskoy i meditsinskoy khimii AMN SSSR, Moskva
(COLLAGEN, metab.
skin, form. from procollagen in normal guinea pigs & in exper. scurvy (Rus))
(SKIN, metab.
collagen form. from procollagen in normal guinea pigs & in exper. scurvy (Rus))
(SCURVY, exper.
eff. on collagen form. from procollagen in skin of guinea pigs (Rus))

ORBKHOVICH, V.N.; ALEKSEYENKO, L.P.; LEVDIKOVA, G.A.

Heterogenicity of secreted protein substances. Vest. AMN SSSR 12 no.1:12-18 '57 (MLRA 10:5)

1. Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR, Moskva.
(PROTEINS
heterogenicity of animal proteins)

OREKHOVICH, V.N., professor

International Conference on Proteins. Vest. AMN SSSR 12 no.1:81-87 '57 (MLRA 10:5)

(PROTEINS)

ORBKHOVICH, V.N.; PAVLIKHINA, L.V.; SHPIKITER, V.O.

Nature of the alkali-soluble fraction of collagen [with summary in English]. Biokhimiia 22 no.1/2:210-213 Ja-F '57. (MLRA 10:7)

1. Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR, Moskva.
(COLLAGEN,
alkali-soluble fraction (Rus))

LOKSHINA, L.A.; OREKHOVICH, V.N.

Activation fo pepsinogen [with summary in English]. Biokhimiia 22 no.4:699-701 Jl-Ag '57. (MIRA 10:11)

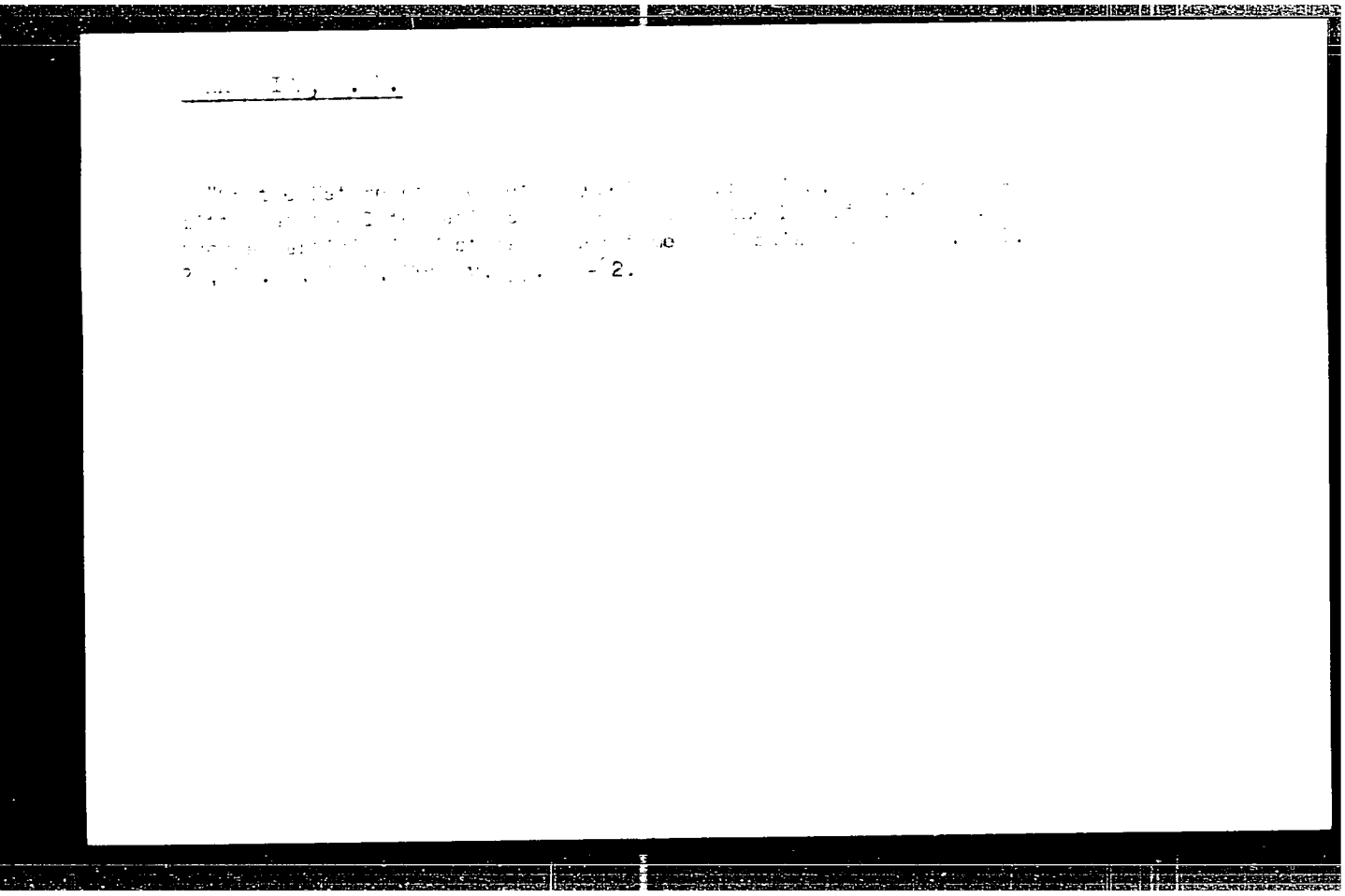
1. Institut biologicheskoy i meditsinskoy khimii AMN SSSR, Moskva.
(ENZYME PRECURSORS,
popsinogen, activation (Rus))

OREKHOVICH, V. N.

EXCERPTA MEDICA Sec 7 Vol 11/7 Physiology July 59

2889. ISOLATION OF A HIGHLY ACTIVE ACYLASE I FROM HOG KIDNEYS (Russian text) - Chi Cheng-Wu and Orekhovich V. N. Lab. of Chem. and Biochem. of Proteins, Inst. of Biol. and Med. Chem., Acad. of Med. Scis of the USSR, Moscow, USSR - BIOKHIMIYA 1957, 22/5 (838-842) Graphs 2 Tables 2

The preparation thus obtained is 5-8 times as active as the preparation obtained by the Greenstein method. The acylase purified according to this method is more specific with regard to acetylalanine and Cl-acetylalanine. The purity of the preparation amounts to 73%. The highly purified acylase preparation possesses (at pH 3) the activity of cathepsin.



OREKHOVICH, V.N.

20-1-37/54

AUTHOR: OREKHOVICH, V.N., Regular member of the Academy of Medical Sciences of the U.S.S.R., and SHPIKITER, V.O.

TITLE: Isolation of α- and β-Components of Procollagen (Vydeleniye α- i β-komponentov prokollagena. Russian)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 115, Nr 1, pp 137-140 (U.S.S.R.)

ABSTRACT: When investigating the sedimentation of procollagen in a 5 M urea solution the authors observed a decomposition of protein after 10 min. heating at 30°C. This permits the conclusion that the procollagen molecule represents a two-component complex. These complexes are bound together in their native structure by comparatively weak, perhaps saline or hydrogen linkage. This splitting in two was also observed on sedimentation of procollagen solutions which were previously treated with 5 M KCNS in a phosphate buffer solution at room temperature, or which were heated for 20 min. at 70°C as suspensions in such a solution (pH 8). This indicated that the liberation of individual components takes place under the influence of various actions (temperature, urea, KCNS) which lead to the splitting of weak non-valent linkages. One of the objects of further studies was the isolation of individual components. The decomposition products of procollagen in their chemical composition and several physical properties are somewhat like gelatin. Therefore the authors employed a number of methods which earlier served in the fractioning of gelatin.

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Isolation of α- and β-Components of Procollagen

by none of these methods was a sufficiently good separation of individual components obtained. Therefore a new method of fractionating was worked out. Satisfactory results could be obtained on liberation of individual components from a 5 M aqueous solution of urea by ammonium sulfate at 36 °C. After the separation of fraction II no turbidity developed by further additions of ammonium sulfate. After solution of all three fractions in a phosphate buffer solution (with pH 8) with 10 % KCNS this solution was used in an ultracentrifuge for sedimentation tests. Two fractions were obtained, although fraction II was not quite pure. From that it was concluded that the authors' sedimentation principle was correct. This method was then improved and therefore sufficiently pure components I and II were obtained. The great dependence of sedimentation coefficients on the protein concentration in the solution requires a precise definition of these values by extrapolation in the direction of infinite dilution. It is only then that the establishment of the quantitative relation of α- and β-components will permit a theory on their interaction in the procollagen molecule. Orientation tests were made for the determination of the content of amino acids in these components. For this purpose hydrolysates of α- and β-components and of the initial procolla-

[illegible]-1-37/[illegible]

Isolation of α- and β-Components of Procollagen.

gen were produced. In a comparison of the chromatograms of all three preparations no marked difference in the content of amino acids were found. According to provisionary results the amount of oxyprolin in the β-component is smaller than in the two others. The α-component contains somewhat of this acid more than procollagen. Finally published data are analyzed. (With 3 illustrations, 1 Slavic reference).

ASSOCIATION Not given
PRESENTED BY
SUBMITTED 15.1.1957
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Card 3/3

AUTHOR: Kaplanskiy, S Ya., Professor

TITLE: The Problem of Albumins (Problema belka)

PERIODICAL: Nauka i Zhizn', 1958 Nr 4 page 26 (USSR)

ABSTRACT: The Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR, (Institute of Biological and Medical Chemistry attached to the USSR Academy of Medical Sciences convened a conference on problems of albumin structure al bumin properties of animal organs and tissues their biosyn. thesis and changes. Over 600 scientific workers from various countries, including Czechoslovakia, Hungary, China and the GDR, were present Professor V N. Orekhovich Member of the AMN, Director of the Institute opened the conference with a report on a new class of albumins the so called "protell agens" Reports on modern chemical physico-chemical, and spectroscopic methods of albu in analysis were delivered by K.F Firfarova, M.P. Chernikov, A. Lokshina V O. Shpikiter Tsi Chzhen-u, Aspirant from the KNR, O V Troitskaya L N Shigorin, who are all collaborators of Professor Orekhov. Academician Shtorm and Doctors B Keyl and V Tomashek report ted on the work of the Institut khimii belka Akademii nauk v Prage (Institute of Albumin Chemistry attached to the

Card 1/2

The Problem of Albumins

Academy of Sciences in Prague) in the field of albumin structure. Moreover the conference heard the following reports: A.V. Palladin, President of the Ukrainian Academy of Sciences on albumin properties in various sections of the nervous system; Professor G.Ye Vladimirov, on albumin interchange of the nervous system; Professor V.V. Portugalov on the topography of cerebral albumins; Professor S Ya Kaplanskiy on changes in albumin properties of the liver, kidneys and blood; Professor Tsao T'yen-chin (Shanghai), on a new water soluble muscular albumin; Professor I I. Ivanov of Leningrad on the distribution of albumins in various types of muscular tissues; T. Barzo from Hungary, R V Khesin, A Ye. Gurvich I.B. Zbarsky (USSR), on results of experiments on mechanism and localization of biosynthesis processes of ferments and antibodies and on albumin biosynthesis in tissue growths

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Card 2/2 1. Biology-Conference 2. Albumin-Properties

OREKHOVICH, V.N.; BYCHKOV, I.M.; DEBOV, S.S.; MARDASHEV, S.R.; SEVERIN, S.Ye.

Second International Congress on Clinical Chemistry. Vest.AMN SSSR 13 no.2:62-74 '58. (MIRA 11:3)
(CHEMISTRY, MEDICAL AND PHARMACEUTICAL)

OREKHOVICH, V.N., LEVYANT, M.I., LEVCHUK, T.P.

Studies of the processes of protein renewal. Vest. AMN SSSR 13 no.5:3-8 '58 (MIRA 11:6)
(PROTEINS,
protein regen. processes (Rus))

19. SEDIMENTATION AND DIFFUSION OF α- AND β-COMPONENTS OF PROCOLLAGEN AND THEIR QUANTITATIVE RATIO IN THIS PROTEIN (Russian text) - Orekhovich V. N. and Shpitkiter V. O. Inst. of Biol. and Med. Chem., Acad. of Med. Scis of the USSR, Moscow - BIOKHIMIYA 1958, 23/2 (284-290) Graphs 1 Illus. 1

The α- and β-components of procollagen were isolated by fractionation with ammonium sulphate from a solution in 5 M urea at 37°. Sedimentation and diffusion of these components were determined in a 10% KCNS solution in 1/30 M phosphate buffer (pH 8) and the values of the sedimentation and diffusion constants computed as well as the molecular weights. For the α-component the figures are: $s = 4.0$ S, $D = 2.6 \cdot 10^{-7}$ sq. cm./sec., and $M = 125{,}000$; for the β-component $s = 5.7$ S, $D = 1.6 \cdot 10^{-7}$ sq. cm./sec., and $M = 290{,}000$. The ultracentrifugation method showed that the weight ratio of the α- and β-components in the procollagen molecule is 1:1. It is assumed that the procollagen molecule contains 2 particles of the α-component and one particle of the β-component.

SPIRICHEV, V.B., TSI CHZHEN-U [Ch'i Cheng-wu], ORBEHOVICH, V.N., SHCHUKINA, L.A.

Reversible action of acylase. Report No.1: Enzymatic hydrolysis and synthesis of L-acetylalanine [with summary in English]. Biokhimiia 23 no.6:895-898 N-D '58 (MIRA 11:12)

1. Institut biologicheskoy i meditsinskoy khimii AMN SSSR, Moskva.
(ACYLASE)
(ALANINE)

AUTHORS: Lokshina, L.A. , Orekhovich, V. N., [redacted] 20-118- - 4/1?
Member of Academy of Medical Sciences of the USSR

TITLE: Investigation of the N-Terminal Peptide Liberated During the Activation of Pepsinogen (Izucheniye N-kontsevogo peptida, osvobozhdayushchegosya v protsesse aktivatsii pepsinogena

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 118, Nr 6, pp. 1150-1152 (USSR)

ABSTRACT: As is known, several peptides of a total molecular-weight of approximately 8000, are cracked during the conversion of pepsinogen into pepsin (references 1,2). It was proved that this cracking takes place sometimes during the activation of the N-terminal end of the zymogen-molecule; besides the free peptides, also the cracking of the dinitro-phenol-peptides (DNPh- was observed (reference 3). Data on the structure of this peptide are communicated in the present report. DNPh-pepsinogen was obtained from a combination of pepsinogen with 2, 4 dinotro-1-fluorobenzene (DNFB) in a phosphate buffer (pH 7,0) in the course of 2o hours, at room-temperature. The preparation was dialyzed through at 1 hours

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Investigation of the N-Terminal Peptide Liberated During the Activation of Pepsinogen 20-118 [illegible]

and subsequently dried from the frozen state. The method of activation is described. A centrifugate of trichloroacetic acid has a faint yellow coloring and contains chiefly free peptides. The alcohol-fraction was, as a rule, intensely colored and contained apparently the N-terminal DNPh-peptide. This fraction was investigated by means of paper-chromatography. It was found out that the alcohol-fraction on uni-dimensional and twodimensional chromatograms in various solvents yields only a single intensely yellow colored spot which is apparently the spot of the N-terminal peptide. Further peptides contained herein, yield still 2 faint yellow spots. The presumable N-terminal peptide was washed out from the paper by means of alcohol and ammonia and investigated on the paper by means of electrophoresis and chromatography. With the electrophoresis in a buffer with 60% alcohol it was found that DNPh moves as a single colored stripe. This proves the homogeneity of the peptide. The peptide was hydrolyzed throughout 24 hours by means of ~n HCl at 110° C, to prove that the isolated substance is the N-terminal peptide of pepsinogen. The liberated DNPh-amino-acid was extracted from the hydrolysate by means of ether

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and subsequently chromatographically investigated. The only observed yellow spot corresponded- according to its position - to the leucine. Since leucine is the N-terminal aminoacid of the pepsinogen, the peptide is also the N-terminal of the pepsinogen. Further the number of the aminoacids of the peptides was investigated (according to reference 4). 16 aminoacid residues were found: 1 alanine-, glycine-, serine-and phenyl-alanine each; 2 valine-, 4 leucine+ isoleucine-and 4 aspartic acid+ glutamic acid residues. This composition was observed in several tests. The cracking of the respective peptide cannot be, therefore, a random result of proteolysis. The spatial sequence of the aminoacid residues was investigated subsequently. It was found that carboxypeptidiasis cracks at first leucine from the peptide and subsequently alanine. Further aminoacid is presumably proline or lysine: The N-terminal sequence of the peptide was investigated by means of the phenyl-isothiocyanate - method. Since it is difficult and complicated in this case,

Card 3/4 the sequence of the aminoacid residues was investigated with

AUTHOR: [illegible], Member AMN SSSR,

TITLE: The Influence of Temperature Upon the Velocity of Procollagen Splitting by Clostridium Collagenase (Vliyaniye temperatury na skorost' rasshchepleniya prokollagenov kollagenazoy)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 120, Nr 2, pp. [illegible]

ABSTRACT: The present paper is dealing with this influence with regard to soluble collagens of the skin of rats, the skin of the air bladder of the carp (Ichthiokoll) and the skin of the sea-fish. These proteins approximately have the same molecular weights and size of molecules (reference 1) as well as a similar configuration of the polypeptide chains. On the other hand they differ by the quantitative content of oxyproline (reference 2). The latter fact causes a different temperature of the heat-denaturation of procollagens in the solution which is accompanied by a splitting of hydrogen bonds and by the decomposition of molecules into their component parts (references 3,4-5). The collagenase preparation was produced of a filtrate of Clostridium histolyticum culture by means of

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The Influence of Temperature Upon the Velocity of Procollagen Splitting by Collagenase

precipitated with ammonium sulfate (reference 6), [illegible] against water and lyophilized in a vacuum from a frozen state follow. The procollagens were extracted from small pieces of tissue by cold acetate-buffer and precipitated by dialysis of the extracts against a double substituted sodium-phosphate solution. Figure 1 shows the velocity curves of the splitting of different procollagens by collagenase (curves A,B,V) in dependence on temperature; the velocity is expressed in conventional units. The velocity curves of heat-denatured (curves a,t,v) are given in the same figure in the same units. As may be seen from this a very intensive splitting of the procollagen of rat skin takes place at 4°, the same velocity is observed in the carp at 18°, and in the gelatine of codfish at 12°. The denaturation of the same procollagens only sets in at 30, 29 and 42°. Thus it becomes clear that collagenase already acts intensively enough at temperatures at which no denaturation does yet occur, and the original configuration of the substrates is preserved. Nevertheless the hydrogen bonds must be weakened with a temperature increase and the inner stability of the molecules reduced.

Card 2 4

The Influence of Temperature Upon the Velocity of [illegible] SOV 20-120-2-38/63
Procollagen Splitting by Collagenase

This weakening is not sufficient for the molecule decomposition, but suffices for making the substrate susceptible to the influence of the enzyme. In other words, an unstable state of the substrate is necessary for the action of collagenase. The higher this state, the faster is the velocity of splitting. The position of the velocity curves of splitting can be explained by a different degree of the natural stability of molecules of the investigated proteins. In any case further investigations in this field are necessary. There are 1 figure and 9 references, 2 of which are Soviet.

ASSOCIATION: Institut biologicheskoy i meditsinskoy khimii Akademii meditsinskikh nauk SSSR (Institute of Biological and Medical Chemistry, Academy of Medical Sciences, USSR)

SUBMITTED: January 27, 1958

Card 3/3

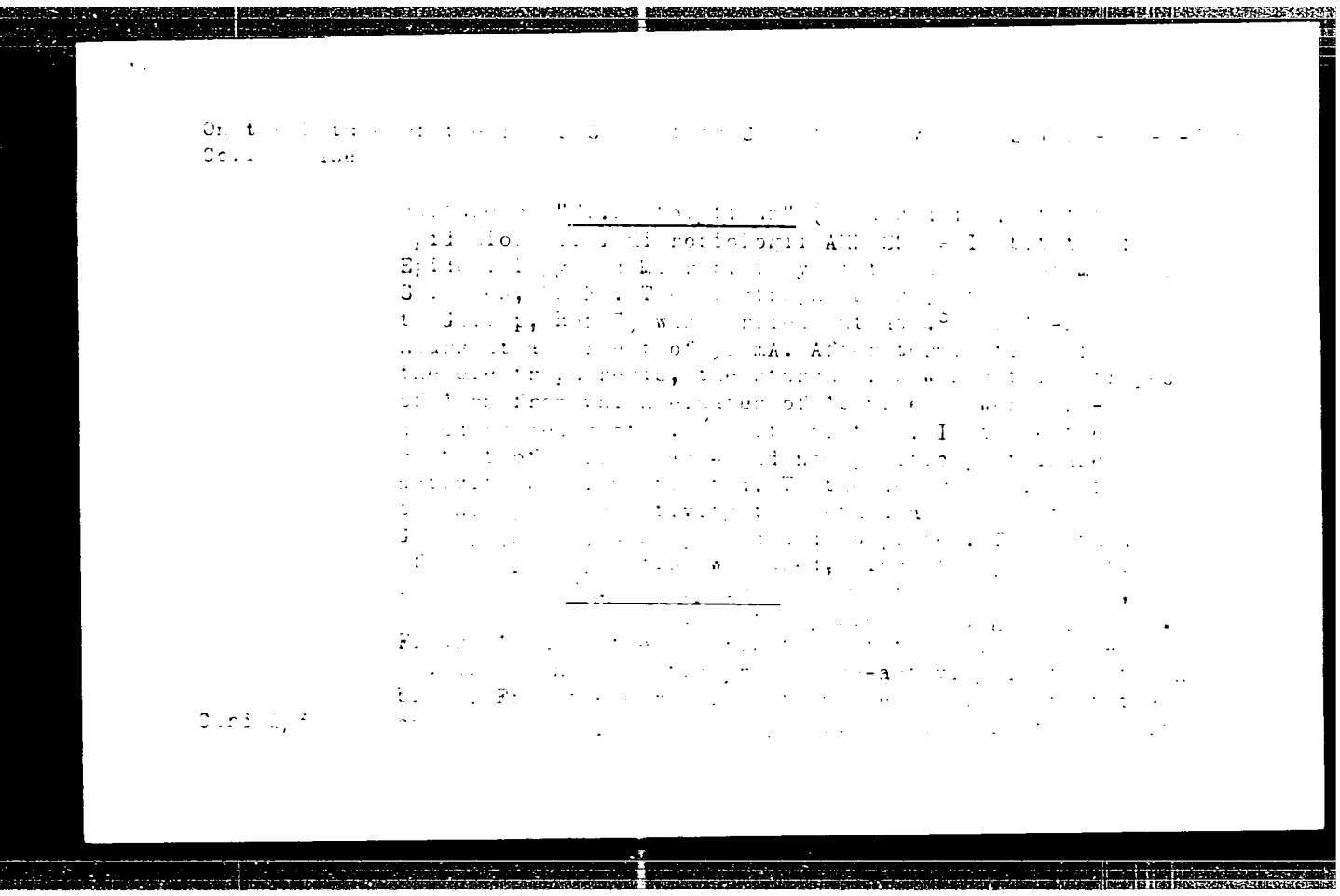
AUTHORS: [illegible]

TITLE: [illegible]

REPORT TITLE: [illegible]

ABSTRACT: [illegible]

Card 1/3



On the Nature of the Bon[illegible] [illegible] to Sp[illegible] [illegible] S V [illegible]
[illegible]

the pe tide [illegible] ges, which are chiefly formed [illegible] amino groups of glycine, and, [illegible] to [illegible] formation, by the carboxyl groups of oxyproline alanine and proline. L.A.Loksnina and S.V.Tr[illegible] [illegible] [illegible] in the [illegible]. The [illegible] figures [illegible] refer-ences, [illegible] Soviet.

ASSOCIATION: Institut biolo[illegible] oy i med[illegible] [illegible] A[illegible] [illegible] meditsinskikh [illegible] SSSR (Institute of Biol[illegible] [illegible] medical Chemistry of the Academy of Medical Sciences, USSR)

SUBMITTED: [illegible]

Card 3/3

OREKHOVICH, V. N. and SHPIKITER, V. O.

"Procollagens, - Citrate-soluble Fraction of Collagen is ... to form a special Group of Connective Tissue Proteins." Science, 13 June 58, Vol. 127, No. 3311,

Inst. of Biological and Med. Chem., Acad. Medical Sci. ..., Moscow,
(Dir. - Dr. Orekhovich)
Mbr. Presidium, Acad. Med. Sci. (Orekhovich)

This article is based on a paper which Dr. Orekhovich presented at Mass. Gen. Hospital, Boston, 11 Dec 57.

BAKULEV, A.N., otv. red.; DAVYDOVSKIY, I.P., red.; YEGOROV, B.G., red.; ZHDANOV, D.A., red.; ZHUKOVSKIY, M.A., red.; LETAVET, A.A., red.; OREKHOVICH, V.N., red.; PARIN, V.V., red.; SERGIYEV, P.G., red.; BEL'CHIKOVA, Yu.S., tekhn. red.

[Abstracts of scientific papers of the Academy of Medical Sciences of the U.S.S.R. for 1956] Annotatsii nauchnykh rabot Akademii meditsinskikh nauk SSSR za 1956 god. Otv. red. A.N. Bakulev. Moskva, Medgiz. Books 2-3. 1959. (MIRA 17:2)

1. Akademiya meditsinskikh nauk SSSR.

MANT'YEV, V.A.; ORECHOVICH, V.N.

Apparatus for the preparative separation of substances by continuous electrophoresis. Vop.med.khim. 5 no.5:381-387 S-O '59.
(MIRA 13:2)

1. Laboratory of Protein Chemistry, Institute of Biological and Medical Chemistry, the U.S.S.R. Academy of Sciences, Moscow.
(ELECTROPHORESIS equip. & supply)

OREKHOVICH, V.N., prof.; MAZURAEV, S.R., prof.; DEBOV, S.S., kand.med.nauk

Soviet biochemists visit the U.S.A. Vest.AMN SSSR 14 no.7: 57-67 '59. (MIRA 12:9)

1. Deystvitel'nyye chleny AMN SSSR (for Orekhovich, Debov).
(UNITED STATES--BIOCHEMISTRY)

MAZUROV, V.I.; OREKHOVICH, V.N.

Comparative study of soluble collagenlike proteins [with summary in English]. Biokhimiia 24 no.1:33-38 Ja-F '59. (MIRA 12:4)

1. Institute of Biological and Medical Chemistry, Academy of Medical Sciences of the U.S.S.R., Moscow.
(PROTEINS,
soluble collagen-like proteins, comparison (Rus))