

Vyas And Khar Controlled Drug Delivery Latest Edition

Vyas and Khar Controlled Drug Delivery is a prominent area of research and development in the pharmaceutical industry, focusing on innovative methods to enhance drug efficacy, safety, and patient compliance. Controlled drug delivery systems are designed to release therapeutic agents at predetermined rates, durations, and target sites, thereby optimizing treatment outcomes and minimizing side effects. Vyas and Khar have extensively contributed to this field through their research, pioneering techniques, and formulation strategies that have significantly advanced controlled release technologies.

Introduction to Controlled Drug Delivery Systems

Controlled drug delivery systems are engineered to deliver medication in a controlled manner, either over a sustained period or at specific target sites within the body. Unlike conventional dosage forms that release drugs immediately upon administration, controlled systems aim to:

- Maintain consistent plasma drug concentrations
- Reduce dosing frequency
- Improve patient adherence
- Minimize fluctuations in drug levels
- Target specific tissues or cells

These systems utilize various mechanisms such as diffusion, erosion, osmosis, and stimuli-responsive release to achieve desired pharmacokinetic profiles.

Vyas and Khar's Contributions to Controlled Drug Delivery

Dr. Vyas and Dr. Khar have been at the forefront of pharmaceutical research, particularly in the development of novel controlled release formulations. Their work encompasses:

- Design of advanced drug delivery systems such as matrix tablets, reservoir systems, and polymer-based implants.
- Development of bioadhesive and mucoadhesive systems to enhance site-specific delivery.
- Innovation in nanotechnology-based delivery including liposomes, nanoparticles, and micelles.
- Optimization of formulation parameters to improve stability, bioavailability, and patient

compliance.

Their research has not only contributed to academic knowledge but also translated into practical applications and commercial products.

Types of Controlled Drug Delivery Systems

Controlled drug delivery systems can be broadly classified based on their mechanism of action and the materials used. Some common types include:

1. Matrix Systems

- Drugs are dispersed within a polymer matrix.
- Release occurs via diffusion as the drug diffuses out of the matrix.
- Examples: Matrix tablets, hydrogels.

2. Reservoir Systems

- Consist of a drug core encapsulated by a rate-controlling membrane.
- Release is regulated through membrane permeability.
- Examples: Osmotic pumps, coated beads.

3. Osmotic Systems

- Use osmotic pressure to deliver drugs at a controlled rate.
- Independent of pH and gastrointestinal conditions.
- Examples: Osmotic pump tablets.

4. Multiparticulate Systems

- Comprise small, discrete units like pellets or beads.
- Offer uniform drug release and reduced dose dumping.
- Examples: Granules, microcapsules.

5. Stimuli-Responsive Systems

- Release drugs in response to specific stimuli such as pH, temperature, or enzymes.
- Examples: pH-sensitive hydrogels, thermosensitive liposomes.

Materials Used in Vyas and Khar Controlled Drug Delivery Systems

The choice of materials significantly influences the performance of controlled release systems. Vyas and Khar have extensively researched various polymers and excipients, including:

- **Natural Polymers:** Chitosan, alginate, gelatin, and cellulose derivatives
- **Synthetic Polymers:** Polyethylene glycol (PEG), polyvinyl alcohol (PVA), poly(lactic-co-glycolic acid) (PLGA), ethyl cellulose
- **Stimuli-Responsive Polymers:** Polyacrylic acid, poly(N-isopropylacrylamide)

These materials are selected based on biocompatibility, biodegradability, mechanical properties, and the desired release profile.

Formulation Strategies by Vyas and Khar

The formulation approaches devised by Vyas and Khar aim to optimize drug release kinetics, stability, and patient compliance:

- **Matrix Tablets and Hydrogels:** Incorporate the drug within a polymer matrix, allowing diffusion-controlled release.
- **Reservoir Devices:** Utilize a core-shell design where the drug is encapsulated within a controlled membrane.
- **Nanocarriers:** Use nanoparticles, liposomes, or micelles for targeted delivery and overcoming biological barriers.
- **Mucoadhesive Systems:** Enhance residence time at mucosal surfaces, improving absorption.
- **Osmotic Pump Devices:** Use osmotic pressure to regulate drug release independently of pH or gastrointestinal motility.

Their research emphasizes the importance of understanding drug-polymer interactions, release mechanisms, and the influence of physiological conditions on system performance.

Advantages of Vyas and Khar Controlled Drug Delivery Systems

Implementing controlled drug delivery systems based on Vyas and Khar's principles offers numerous benefits:

- Enhanced Therapeutic Efficacy: Maintains plasma drug levels within the therapeutic window.
- Reduced Side Effects: Minimizes peak-trough fluctuations that cause adverse effects.
- Improved Patient Compliance: Less frequent dosing improves adherence.
- Targeted Delivery: Localizes drug action, reducing systemic exposure.
- Protection of Labile Drugs: Provides stability for sensitive molecules.
- Controlled Release Kinetics: Customizable release profiles to suit specific therapeutic needs.

Applications of Vyas and Khar Controlled Drug Delivery Systems

The principles developed by Vyas and Khar find applications across various therapeutic areas:

- Chronic Diseases: Diabetes, hypertension, and arthritis where sustained release improves control.
- Cancer Therapy: Targeted delivery minimizes systemic toxicity.
- Infectious Diseases: Prolonged release of antibiotics and antivirals.
- Vaccine Delivery: Controlled release of antigens for enhanced immune response.
- Neurological Disorders: Sustained delivery of drugs like dopamine or antiepileptics.

Challenges and Future Perspectives

Despite significant advances, controlled drug delivery systems face challenges such as:

- Complex Manufacturing Processes: Ensuring consistency and scalability.
- Biocompatibility and Safety: Long-term effects of polymers and excipients.
- Drug-Polymer Interactions: Potential for altered drug stability.
- Regulatory Hurdles: Demonstrating safety and efficacy for approval.

Future research inspired by Vyas and Khar focuses on:

- Personalized Medicine: Tailoring release profiles to individual patient needs.
- Smart Systems: Integrating sensors for real-time drug release adjustments.
- Nanotechnology: Enhancing targeting and crossing biological barriers.
- Biodegradable Systems: Reducing environmental impact and improving safety.

Conclusion

Vyas and Khar's contributions to controlled drug delivery have significantly shaped modern pharmaceutical sciences. Their innovative approaches and extensive research have facilitated the

development of systems that improve therapeutic outcomes, enhance patient compliance, and reduce adverse effects. As technology advances, their foundational work continues to inspire new generations of drug delivery systems that hold the promise of more effective and safer therapies in the future.

Keywords: Vyas and Khar, controlled drug delivery, sustained release, bioadhesive systems, nanotechnology, polymer matrices, targeted delivery, pharmaceutical innovations, drug release mechanisms.

Vyas and Khar Controlled Drug Delivery: An In-Depth Investigation into Their Contributions and Innovations

The field of controlled drug delivery has undergone a remarkable transformation over the past few decades, driven by the need for precise therapeutic management, improved patient compliance, and minimized side effects. Among the pioneers contributing to this evolution are Dr. Vyas and Dr. Khar, whose groundbreaking work has significantly advanced the understanding and development of controlled release systems. This comprehensive review delves into their contributions, exploring the foundational principles, technological innovations, and ongoing research inspired by their work.

Introduction to Controlled Drug Delivery

Controlled drug delivery systems are designed to release therapeutic agents at predetermined rates, durations, and target sites, thus optimizing efficacy and safety. These systems can be classified into several categories based on mechanisms, including sustained release, pulsatile release, targeted delivery, and stimuli-responsive systems. The development of such systems requires a multidisciplinary approach, encompassing pharmaceutical sciences, materials engineering, and pharmacokinetics.

The Pioneering Role of Vyas and Khar in Controlled Drug Delivery

Background and Scientific Contributions

Dr. Vyas and Dr. Khar emerged as influential figures in the realm of pharmaceutical sciences, particularly in the development of controlled release systems. Their collaborative research has led to numerous innovations, including novel polymer-based matrices, implantable devices, and multiparticulate systems.

Their work is characterized by a rigorous scientific approach, combining experimental pharmacology with materials science to create systems that can modulate drug release profiles effectively. Their publications and patents have laid a foundation for subsequent researchers and industry applications.

Major Areas of Focus

- Development of novel biodegradable polymers
- Design of multiparticulate and matrix systems
- Exploration of stimuli-responsive drug release mechanisms
- Application of controlled systems for targeted therapy
- Formulation strategies for poorly soluble drugs

Key Innovations and Technological Advances

Polymer-Based Controlled Release Systems

Vyas and Khar extensively investigated the use of natural and synthetic polymers to fabricate controlled-release matrices. Their work demonstrated how polymer properties influence drug release kinetics, leading to the development of:

- Hydrophilic matrices: Using polymers like hydroxypropyl methylcellulose (HPMC) for sustained release.
- Biodegradable polymers: Such as polylactic acid (PLA) and polyglycolic acid (PGA) for implantable devices.
- Interpenetrating polymer networks (IPNs): To achieve specific release profiles.

Multiparticulate Systems

They pioneered multiparticulate drug delivery systems, including pellets and microspheres, which offer several advantages:

- Uniform drug distribution
- Reduced dose dumping
- Flexibility in designing release profiles
- Enhanced bioavailability

Their research detailed methods for producing these systems via techniques like fluidized bed coating and solvent evaporation.

Stimuli-Responsive and Targeted Delivery

Recognizing the importance of site-specific therapy, Vyas and Khar explored stimuli-responsive

systems that react to environmental triggers such as pH, temperature, or enzymes. Their contributions include:

- pH-sensitive hydrogels for site-specific release in the gastrointestinal tract
- Temperature-sensitive liposomes for localized drug delivery
- Enzyme-responsive systems for targeting pathological tissues

This work paved the way for more sophisticated, responsive delivery platforms.

Analytical and Formulation Strategies

Vyas and Khar emphasized the importance of rigorous characterization methods to optimize controlled delivery systems:

- In vitro dissolution testing: To study release kinetics
- Scanning electron microscopy (SEM): For morphological analysis
- Differential scanning calorimetry (DSC): To assess polymer-drug interactions
- Pharmacokinetic studies: To evaluate in vivo performance

Their formulation strategies involved optimizing parameters such as polymer concentration, particle size, and cross-linking density to fine-tune drug release.

Impact on Pharmacotherapy and Clinical Applications

The innovations driven by Vyas and Khar have translated into tangible clinical benefits:

- Improved management of chronic diseases like hypertension and diabetes
- Reduced dosing frequency, enhancing patient compliance
- Minimized peak-trough fluctuations, decreasing adverse effects
- Development of implantable devices for long-term therapy

Their work also contributed to the development of marketed controlled-release formulations, influencing regulatory standards and manufacturing practices.

Challenges and Future Directions

Despite extensive advancements, several challenges remain in controlled drug delivery:

- Achieving precise control over complex release profiles
- Ensuring biocompatibility and biodegradability of novel materials
- Scaling laboratory innovations to industrial production
- Addressing variability in patient physiology that affects drug release

Building on Vyas and Khar's foundational work, future research is focusing on:

- Nanotechnology integration: For ultra-targeted delivery
- Personalized medicine: Tailoring systems to individual patient needs
- Smart systems: Combining sensors and actuators for feedback-controlled release
- Regulatory pathways: Streamlining approval processes for innovative systems

Conclusion

The contributions of Vyas and Khar to controlled drug delivery are both profound and enduring. Their pioneering research has not only expanded the scientific understanding of polymeric and multiparticulate systems but also translated into meaningful clinical applications that improve patient outcomes. As the field advances toward more sophisticated, responsive, and personalized systems, their foundational work continues to inspire and guide innovators worldwide.

Continued exploration into novel materials, stimuli-responsive mechanisms, and integrated technologies promises to further revolutionize drug delivery paradigms. Their legacy underscores the importance of interdisciplinary collaboration and relentless innovation in achieving safer, more effective therapeutic strategies.

References

(Note: In an actual publication, this section would include detailed references to Vyas and Khar's publications, patents, and relevant literature.)

This comprehensive review highlights the significance of Vyas and Khar's work in shaping modern controlled drug delivery systems, emphasizing their innovative approaches and the ongoing influence of their research in pharmaceutical sciences.

Question What is Vyas and Khar controlled drug delivery system? Vyas and Khar controlled drug delivery system refers to advanced methodologies developed by researchers Vyas and Khar that enable the sustained and targeted release of drugs, improving therapeutic efficacy and patient compliance. How do Vyas and Khar controlled drug delivery systems improve drug bioavailability? These systems optimize drug release profiles, protect drugs from degradation, and facilitate targeted delivery, thereby enhancing bioavailability and reducing dosing frequency. What

are the main types of Vyas and Khar controlled drug delivery systems? They include matrix systems, reservoir systems, transdermal patches, implantable systems, and targeted delivery vehicles designed for specific therapeutic needs. What materials are commonly used in Vyas and Khar controlled drug delivery formulations? Biodegradable polymers, hydrogels, liposomes, and other biocompatible materials are commonly employed to achieve controlled and sustained release. What advantages do Vyas and Khar controlled drug delivery systems offer over traditional methods? Advantages include reduced dosing frequency, improved patient compliance, targeted delivery, lower side effects, and enhanced therapeutic outcomes. Are Vyas and Khar controlled drug delivery systems suitable for all types of drugs? While versatile, their suitability depends on the drug's properties; some drugs with specific stability or release requirements may need customized systems. What are the current challenges in developing Vyas and Khar controlled drug delivery systems? Challenges include ensuring precise control over release rates, biocompatibility, scalability of manufacturing, and addressing regulatory requirements. How do Vyas and Khar systems facilitate targeted drug delivery? They incorporate mechanisms such as ligand attachment, pH-sensitive materials, or stimuli-responsive components to direct drugs to specific tissues or cells. What recent advancements have been made in Vyas and Khar controlled drug delivery research? Recent advancements include nanocarrier-based systems, smart polymers responsive to physiological stimuli, and minimally invasive implantable devices. What is the future outlook for Vyas and Khar controlled drug delivery systems? The future holds promising developments in personalized medicine, improved targeting, and integration with digital health technologies to optimize therapy outcomes.

Related keywords: Vyas and Khar, controlled drug delivery, drug release systems, pharmacokinetics, polymer-based delivery, biodegradable polymers, sustained release, drug encapsulation, pharmaceutical formulations, targeted delivery

Rusuli anbani qartuli targmnit

rusuli anbani qartuli targmnit: Comprehensive Guide to Georgian Essential Phrases and Translations

Understanding the importance of effective communication in any language is crucial for travelers, students, and professionals engaging with Georgian culture. **rusuli anbani qartuli targmnit** ? which translates to ?main essential Georgian phrases and translations? ? serves as a vital resource for mastering the basics of Georgian language. Whether you are planning a trip to Georgia, learning the language academically, or simply interested in Georgian linguistics, this article provides a detailed overview of essential phrases, cultural nuances, and practical translation tips to enhance your language proficiency.

Introduction to the Georgian Language and Its Significance

Georgia, located at the crossroads of Eastern Europe and Western Asia, boasts a rich history and unique linguistic heritage. The Georgian language, known as Kartuli (ქართული), is a part of the South Caucasian language family, distinguished by its distinctive script and phonetics.

Understanding key phrases in Georgian is not only about communication but also about gaining insight into Georgian culture, hospitality, and traditions. The phrase **rusuli anbani qartuli targmnit** underscores the importance of focusing on fundamental language tools to navigate daily interactions confidently.

Core Georgian Phrases and Their Translations

Mastering essential phrases can significantly improve your interactions with local residents and make your experience in Georgia more authentic and enjoyable.

Greetings and Polite Expressions

- **Gamarjoba** (გამარჯობა) ? Hello / Hi
- **Dila mshvidobisa** (დილა მშვიდობისა) ? Good morning
- **Gamarjoba, rogor shes khar?** (გამარჯობა, როგორ ხარ?) ? Hello, how are you?
- **Gmadlobt** (გმადლობთ) ? Thank you
- **Ukatsravad** (უკატრავად) ? Sorry / Excuse me
- **Gamarjoba, madloba** (გამარჯობა, მადლობა) ? Hello, thank you

Common Questions and Responses

- **Tanatsqvare?** (თანატყვარე?) ? How are you?
- **Ra gvaqvs?** (რა გვაყვს?) ? What is your name?
- **Chems ukve mowlod am** (ჩემს უკვე მოვლოდ ამ) ? My name is?
- **Es chemi saxli** (ეს ჩემი სახლი) ? This is my favorite
- **Duqmeps?** (დუკმეფს?) ? Do you understand?
- **Ti, gmadlobt** (ტი, გმადლობთ) ? Yes, thank you

Directions and Transportation

- **Es aris sakartvelo** (ეს არის საქართველო) ? This is Georgia
- **Ra ginda?** (რა გინდა?) ? Where is??

- **Maghalat ginda?** (???????? ???? ?) ? Do you want a taxi?
- **Shesadzlebelia** (?????????) ? Can you help?

Shopping and Eating Out

- **Vici sheidzleba?** (???? ??????) ? Do you speak English?
- **Magalitat, romelic rogor gashvla** (????????, ????? ???? ?) ? Please speak slowly
- **Gogo, mosaxleobis** (????, ??????) ? Waiter, please
- **Chemi aris** (???? ?) ? I would like
- **Gogo, gashvla!** (????, ??????) ? Waiter, bring me!

Practical Tips for Using Georgian Phrases

Mastering basic phrases is essential, but understanding their cultural context enhances communication effectiveness.

Cultural Etiquette and Language Use

- Always greet with **Gamarjoba** when entering shops or meeting locals.
- Express gratitude with **Madloba** to show appreciation.
- Use polite forms when addressing elders or officials.
- Learning a few polite phrases can foster goodwill and friendliness.

Pronunciation Tips

- Georgia has unique sounds; listening to native speakers helps improve pronunciation.
- Practice key sounds like **sh** (?), **kh** (?), and **gh** (?) which are common in Georgian.
- Use language apps or online resources to listen and repeat phrases.

Additional Resources for Learning Georgian

Learning **rusuli anbani qartuli targmnit** requires consistent practice and access to quality resources. Here are some recommended tools:

- **Online Language Courses:** Platforms like GeorgianPod101 or LingQ offer lessons tailored for beginners.
- **Mobile Apps:** Duolingo and Memrise include Georgian language modules.

- **Phrasebooks:** Physical or digital Georgian phrasebooks for travelers.
- **Language Exchange:** Engage with native speakers through platforms like Tandem or HelloTalk.
- **Audio Resources:** Listening to Georgian music, podcasts, and radio to familiarize with pronunciation and intonation.

Conclusion

Mastering **rusuli anbani qartuli targmnit** ? essential Georgian phrases and their translations ? is a foundational step toward effective communication in Georgia. Whether you aim to navigate daily interactions, deepen cultural understanding, or enhance your language skills, focusing on core expressions, etiquette, and pronunciation will significantly benefit your experience.

Remember, language learning is a continuous journey. Incorporate practice into your daily routine, utilize available resources, and engage with native speakers whenever possible. With dedication and the right tools, you'll find yourself communicating confidently in Georgian and immersing yourself more fully in the vibrant culture of Georgia.

Keywords: rusuli anbani qartuli targmnit, Georgian phrases, Georgian language, Georgian translations, essential Georgian, learn Georgian, Georgian vocabulary, Georgian phrases for travelers, Georgian language tips

Rusuli Anbani Qartuli Targmnit: A Deep Dive into the World of Georgian Language and Literature

The phrase **rusuli anbani qartuli targmnit**?literally translating to "the main Georgian language translation"?encapsulates a rich and complex facet of Georgia's linguistic and cultural identity. As Georgia navigates its historical, social, and political landscapes, its language and literature serve as both a mirror and a vessel for national identity, cultural preservation, and modern expression. This article provides an in-depth exploration of Georgian translation practices, its literary heritage, current trends, and the significance of language in shaping Georgia's cultural narrative.

Understanding the Significance of Georgian Language and Translation

The Historical Context of Georgian Language

Georgia's language, known as Kartuli (????????), belongs to the South Caucasian (Kartvelian) language family, which is distinct from the Indo-European and Turkic language families dominating the region. Its unique alphabet, the Mkhedruli script, has been in use since at least the 11th century, symbolizing Georgia's long-standing cultural independence and literary tradition.

Historically, Georgian has been both a spoken and literary language, with a rich corpus of poetry, religious texts, and historical chronicles. The preservation of the language through centuries of foreign dominations—Persian, Ottoman, Russian—underscores its resilience and importance as a pillar of national identity.

The Role of Translation in Georgian Culture

Translation has played a crucial role in shaping Georgia's cultural and intellectual landscape. It has served as a conduit for introducing foreign ideas, fostering intercultural dialogue, and enriching local literature. The translation of religious texts, philosophical works, and scientific literature from multiple languages—Greek, Persian, Russian, European languages—has been vital in elevating Georgian literary standards and intellectual engagement.

The phrase *rusuli anbani qartuli targmnit* emphasizes the importance of high-quality translation practices that preserve the nuances, stylistic features, and cultural context of original texts. Such translations have historically contributed to the development of a distinct Georgian literary voice, capable of engaging with global literary currents while maintaining its unique character.

Current Trends and Challenges in Georgian Translation Practices

Modern Translation Landscape in Georgia

In recent decades, Georgia has seen significant advancements in translation practices, driven by globalization, technological development, and increased international cooperation. Universities, cultural institutions, and translation agencies actively promote professional standards, linguistic accuracy, and cultural sensitivity.

Key trends include:

- Digital translation tools: Use of CAT (Computer-Assisted Translation) software to improve efficiency and consistency.
- Multilingual publications: Publishing works in multiple languages to reach broader audiences.
- Focus on literary translation: Efforts to translate Georgian literature into major languages like English, Russian, and European languages to promote Georgian culture internationally.

Challenges Faced by Translators

Despite progress, several hurdles remain:

- Linguistic nuances: Capturing idiomatic expressions, cultural references, and poetic forms accurately.
- Resource scarcity: Lack of comprehensive bilingual dictionaries and specialized terminology databases.
- Political and cultural sensitivities: Navigating issues around national identity, historical narratives, and contemporary political contexts.
- Training and professional development: Need for ongoing education to adapt to evolving linguistic standards and literary forms.

Quality Control and Cultural Fidelity

Ensuring the fidelity of translation, especially in literary and poetic works, demands not only linguistic competence but also deep cultural understanding. The balance between literal translation and contextual adaptation is delicate, and the best translations often involve collaborative efforts between linguists, cultural experts, and writers.

Key Literary Works and Translators Shaping Georgian Literature

Historical Foundations of Georgian Literature

Georgia boasts a storied literary tradition that dates back over a millennium. The epic *The Knight in the Panther's Skin* by Shota Rustaveli, composed in the 12th century, is regarded as one of the greatest achievements of Georgian literature and has been translated into numerous languages.

Other notable works include religious texts like the *Shen khar Venakhi*, poetry, and historical chronicles. These foundational texts have been subject to numerous translations, facilitating their dissemination beyond Georgia's borders.

Influential Translators and Their Contributions

Several key figures have shaped the translation landscape:

- Vasil Barnov: Known for translating European classics into Georgian, bridging Western literature with Georgian readers.
- Lado Ashkhia: A contemporary translator specializing in modern European literature, emphasizing linguistic precision and cultural authenticity.
- Elene Abashidze: Not only a poet but also a translator who played a significant role in translating Georgian works into Russian and English.

The efforts of these translators have helped place Georgian literature on the global map, fostering

cultural diplomacy and academic interest.

Translation of Georgian Literature into Foreign Languages

The international dissemination of Georgian literature hinges on effective translation. Major publishing houses and literary festivals prioritize such works to promote Georgia's cultural heritage. Notable translations include Rustaveli's *The Knight in the Panther's Skin*, works by contemporary authors like Nino Haratischvili and Dina Gudiashvili, and Georgian poetry collections.

Impact of Political and Social Dynamics on Language and Translation

Historical Influences on Language Policy

Georgia's political history has significantly influenced its language policies. Under the Russian Empire and later the Soviet Union, linguistic policies aimed at Russification often marginalized the Georgian language, impacting translation practices and literary development.

Post-independence, Georgia has prioritized the revival and standardization of its language, with government initiatives promoting translation and localization efforts to foster national identity and cultural sovereignty.

Contemporary Political and Cultural Challenges

Current issues include:

- Language preservation amid globalization and the dominance of English and Russian.
- Cultural diplomacy: Using translation as a tool to strengthen international relations.
- Digital media: The rise of online platforms requires adaptation of translation strategies to new formats and audiences.

Language and Identity in the 21st Century

For Georgia, language is both a cultural treasure and a political symbol. Ongoing debates about language reform, the role of minority languages, and the integration of Georgia into global economic and cultural networks influence translation policies and practices.

The Future of Georgian Language and Translation

Technological Innovations and Digital Transformation

Educational and Cultural Initiatives

Promoting Multilingualism and Cultural Exchange

Conclusion

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Related keywords: ??????? ???, ??????? ?????????, ??????? ?????????, ??????? ?????????, ??????? ?????????, ??????? ?????????, ??????? ?????????, ??????? ?????????, ??????? ?????????, ??????? ?????????, ??????? ?????????

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